



Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

PIEDMONT REGIONAL OFFICE
4949-A Cox Road, Glen Allen, Virginia 23060
(804) 527-5020 FAX (804) 527-5106
www.deq.virginia.gov

Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director
(804) 698-4000

James J. Golden
Regional Director

July 30, 2020

Mr. Andrew M. Girvin
Plant Manager
AdvanSix Resins and Chemicals LLC
905 East Randolph Street
Hopewell, Virginia 23860

Location: City of Hopewell
Registration No.: 50232

Dear Mr. Girvin:

Attached is a significant modification to the Title V permit to operate your facility pursuant to 9VAC5 Chapter 80 Article 1 of the Virginia Regulations for the Control and Abatement of Air Pollution. The attached permit will be in effect beginning July 30, 2020.

In the course of evaluating the application and arriving at a final decision to issue this permit, the Department of Environmental Quality (DEQ) deemed the application complete on May 14, 2020 and solicited written public comments by placing a newspaper advertisement in The Progress-Index on June 15, 2020. The thirty-day required comment period, provided for in 9VAC5-80-270 expired on July 15, 2020.

This permit contains legally enforceable conditions. Failure to comply may result in a Notice of Violation and/or civil charges. Please read all permit conditions carefully.

This permit approval to operate shall not relieve AdvanSix Resins and Chemicals LLC of the responsibility to comply with all other local, state, and federal permit regulations.

The Board's Regulations as contained in Title 9 of the Virginia Administrative Code 5-170-200 provide that you may request a formal hearing from this case decision by filing a petition with the Board within 30 days after this case decision notice was mailed or delivered to you. Please consult the relevant regulations for additional requirements for such requests.

Mr. Andrew Girvin
July 30, 2020

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have 30 days from the date you actually received this permit or the date on which it was mailed to you, whichever occurred first, within which to initiate an appeal of this decision by filing a Notice of Appeal with:

David K. Paylor, Director
Department of Environmental Quality
P. O. Box 1105
Richmond, VA 23218

If this permit was delivered to you by mail, three days are added to the thirty-day period in which to file an appeal. Please refer to Part Two A of the Rules of the Supreme Court of Virginia for information on the required content of the Notice of Appeal and for additional requirements governing appeals from decisions of administrative agencies.

If you have any questions concerning this permit, please contact the regional office at (804) 527-5020.

Sincerely,



Kyle Ivar Winter, P.E.
Deputy Regional Director

KIW/clm/50232-111 Title V Significant Modification

Attachment: Permit

cc: Chief, Air Section (3ED21), U.S. EPA, Region III (electronic file submission)
Manager/Inspector, Air Compliance (electronic file submission)



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Federal Operating Permit
Article 1

This permit is based upon the requirements of Title V of the Federal Clean Air Act and Chapter 80, Article 1, and Chapter 140 of the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution. Until such time as this permit is reopened and revised, modified, revoked, terminated or expires, the permittee is authorized to operate in accordance with the terms and conditions contained herein. This permit is issued under the authority of Title 10.1, Chapter 13, §10.1-1322 of the Air Pollution Control Law of Virginia. This permit is issued consistent with the Administrative Process Act, and 9VAC5-80-50 through 9VAC5-80-300, and 9VAC5-140-10 through 9VAC5-140-900 of the State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution of the Commonwealth of Virginia.

Authorization to operate a Stationary Source of Air Pollution as described in this permit is hereby granted to:

Permittee Name:	AdvanSix Resins and Chemicals LLC
Facility Name:	AdvanSix Resins and Chemicals LLC
Facility Location:	Route 10 & Route 156; Hopewell, Virginia
Registration Number:	50232
Permit Number:	PRO50232

This permit includes the following programs:

Federally Enforceable Requirements - Clean Air Act (Pages 4 through 152)
Federally-Enforceable Requirements – NO_x Budget Program Requirements
Compliance Assurance Monitoring (CAM) Plans – Attachments A-1 to A-6
NO_x Budget Application – Attachment B

October 1, 2014

Effective Date

July 30, 2020

Modification Date

September 30, 2019¹

Expiration Date

A handwritten signature in green ink, appearing to read "K. L. Winters", is written over a horizontal line.

Deputy Regional Director

July 30, 2020

Modification Signature Date

Table of Contents, 3 pages

Permit Conditions, pages 27 through 152 (excluding attachments)

¹AdvanSix Resins and Chemicals LLC submitted a timely and complete application for a Title V Permit renewal. Therefore, the source is operating under an application shield according to 9 VAC 5-80-80 F 5 and 9 VAC 5-80-140.

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Facility Information

Permittee

AdvanSix Resins and Chemicals LLC
905 East Randolph Street
Hopewell, Virginia 23860

Responsible Official

Mr. Andrew M. Girvin
Plant Manager

NO_x Budget Authorized Account Representative

Mr. Andrew M. Girvin
Plant Manager

Facility

AdvanSix Resins and Chemicals LLC
Intersection of Routes 10 and 156

Contact Person

Mr. Thomas L Varner, Jr.
Lead Environmental Engineer
(804) 541-5632

County-Plant Identification Number: 670-0026

Facility Description: NAICS 325199, 325120, 325311 – The AdvanSix Resins and Chemicals LLC – Hopewell Facility is located on a 450-acre site between Route 10 and the James River at the East End of Hopewell. The site employs approximately 700 people.

The facility includes nine major chemical process areas, a powerhouse, and a marine terminal for transfer of fuel and bulk materials. Caprolactam is the primary product which is sold to internal and external customers.

Other products include ammonium sulfate, cyclohexanol, cyclohexanone and oxime chemicals. Major raw materials used at the site include phenol, natural gas for the production of ammonia and sulfur for the production of oleum.

The primary purpose of this modification is to replace the requirements of 40 CFR 60 (NSPS) Subpart CCCC (Standards of Performance for Commercial and Industrial Solid Waste Incinerators) with those of NSPS Subpart Db (Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units). Previously, the FU-17 boiler had been permitted as a CISWI-applicable unit, subject to 40 CFR 60 Subpart CCCC, because Area 6 residue-an authorized fuel for the boiler-was considered a solid waste. More recently, however, AdvanSix provided a demonstration in accordance with 40 CFR Part 241.3(b)(1, 2, 3 & 4) that the residue is a non-hazardous secondary material (NHSM). As such, the Area 6 residue is considered to be a fuel, not a solid waste, when combusted.

The Title V permit is being modified to replace the NSPS Subpart CCCC requirements with NSPS Subpart Db requirements. Additionally, 40 CFR 63 (MACT) Subpart DDDDD requirements applicable to the FU-17 boiler have been incorporated into the Title V permit.

There are a few changes to CAM requirements. CAM requirements for NOx emissions (in lb/hr) from the FU-17 boiler were previously included Attachment A-7 to the Title V permit, because the NOx CEMS for the boiler was required to measure NOx emissions in terms of lb/MMBtu and ppm (but not lb/hr). CAM was required for the lb/hr NOx limit, since it was not directly measured. However, the underlying NSR permit issued on April 24, 2020 requires that the NOx CEMS for the FU-17 boiler measure NOx emissions in both lb/MMBtu and lb/hr. Since the applicable NOx emission standards (lb/MMBtu and lb/hr) now specify a direct continuous compliance mechanism, CAM no longer applies to NOx emissions from the FU-17 boiler. Attachment A-7 to the permit has been deleted.

CAM requirements in Attachment A-1 have also been updated for the Area 6 flares (FLS-61, FLS-62) to reflect changes in the underlying NSR permit issued December 5, 2019. Finally, at the request of AdvanSix, the measurement averaging period listed in Attachment A-6 (Area 11 scrubbers, flow rate and differential pressure) has been increased from one hour to three hours. Scrubber pressure drop and flowrate setpoints have also been increased for Area 11 scrubbers DC-7 and DC-21 due to equipment changes.

Emission Units

Equipment to be operated consists of:

Area 6:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Area 6	N/A	Area 6 Cyclohexanone Production	47,371 Area 6 cyclohexanone units/hr; 480 Area 6 cyclohexanol units/hr	N/A	N/A	N/A	February 19, 2015
A6-Hydro (APT-2,4, 6,81,82)	FU-1 or FLS-61/62	Area 6 Continuous Cyclohexanone Hydrogenation Reactor System	17,520 Area 6 feed units/hr	Process heater combustion or non-assisted flare	FU-1 or FLS-61/62	VOC	February 19, 2015
F-119, F-120	FLS-61/62	Area 6 Cryogenics Carbon Beds	17,520 Area 6 feed units/hr	Non-assisted flare	FLS-61/62	VOC	February 19, 2015
CL-2	FLS-61/62	Cyclohexanone Distillation Column	2,190 Area 6 feed units/hr	Non-assisted flare	FLS-61/62	VOC	February 19, 2015
CL-9	FLS-61/62	Cyclohexanol (APT-1 System) Distillation Column	365 Area 6 feed units/hr	Non-assisted flare	FLS-61/62	VOC	February 19, 2015
CL-10	VE-27	Cyclohexanol (APT-1 System) Distillation Column	321 Area 6 feed units/hr	Condenser	VE-27	VOC	February 19, 2015
CL-17	FLS-61/62	Cyclohexanol Distillation Column	803 Area 6 feed units/hr	Non-assisted flare	FLS-61/62	VOC	February 19, 2015
CL-18	FLS-61/62	Cyclohexanone Distillation Column	2,920 Area 6 feed units/hr	Non-assisted flare	FLS-61/62	VOC	February 19, 2015
CL-25	C-190	Phenol Distillation Column	6,132 Area 6 feed units/hr	Condenser	C-190	VOC	February 19, 2015
CL-26	FLS-61/62	Cyclohexanone Distillation Column	9,198 Area 6 feed units/hr	Non-assisted flare Condenser	FLS-61/62	VOC	February 19, 2015

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
CL-36	C-434	Cyclohexanone Distillation Column	5,840 Area 6 feed units/hr	Condenser	C-434	VOC	February 19, 2015
CL-46	C-249	Phenol System Distillation Column	14,600 Area 6 feed units/hr	Condenser	C-249	VOC	February 19, 2015
CL-80	FLS-61/62	Cyclohexanol Distillation Column	3,066 Area 6 feed units/hr	Non-assisted flare	FLS-61/62	VOC	February 19, 2015
CL-64	VE-108	Cyclohexanone Distillation Column	3,504 Area 6 feed units/hr	Condenser	VE-108	VOC	February 19, 2015
CL-65	CL-65RC	Cyclohexanone Distillation Column	6,570 Area 6 feed units/hr	Condenser	CL-65RC	VOC	February 19, 2015
CL-65N	FLS-61/62	Cyclohexanone Distillation Column	6,570 Area 6 feed units/hr	Non-assisted flare	FLS-61/62	VOC	February 19, 2015
APT-66B APT-67B	C-225	Two Phenol Purification Vessels	18,396 Area 6 feed units/hr	Condenser	C-225	VOC	February 19, 2015
CT-48 CT-53 CT-55	FLS-61/62	Three Continuous Cyclohexanone Catalyst Centrifuges	11,096 Area 6 feed units/hr	Non-assisted flare	FLS-61/62	VOC	February 19, 2015
APT-1	FLS-61/62	Cyclohexanol Batch Reactor	3,504 Area 6 feed units/batch	Non-assisted flare	FLS-61/62	VOC	February 19, 2015
VA-15	VE-76ZC	CL-26 Catalyst Concentrator	292 Area 6 feed units/hr	N/A	N/A	N/A	February 19, 2015
VA-17	VE-107ZC	CL-36 Catalyst Concentrator	146 Area 6 feed units/hr	N/A	N/A	N/A	February 19, 2015
VT-003	VT-003	Area 6 Storage Tank	4,638 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-004	VT-004	Area 6 Storage Tank	4,638 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-005	VT-005	Cyclohexanone/ Cyclohexanol Storage Tank	4,638 Area 6 storage units	Submerged Fill Pipe	N/A	VOC	February 19, 2015
VT-007	C-437	CL-80 Feed Tank	10,230 Area 6 storage units	Condenser	C-437	VOC	February 19, 2015

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
VT-008	VT-008	Area 6 Storage Tank	10,230 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-010	VT-010	Area 6 Storage Tank	1,535 Area 6 storage units	Submerged Fill Pipe	N/A	VOC	February 19, 2015
VT-029	VT-029	Area 6 Storage Tank	16,027 Area 6 storage units	Submerged Fill Pipe	N/A	VOC	February 19, 2015
VT-462	VT-462	Crude Phenol Storage Tank	349,184 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-515	VT-515	Crude Phenol Storage Tank	349,184 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-197	VT-197	Area 6 Storage Tank	358 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-205	VT-205	Nadone Storage Tank	49,104 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-210	C-225	Phenol Distillation Residue Storage Tank	4,007 Area 6 storage units	Submerged Fill Pipe/Level Control and Condenser	C-225	VOC	February 19, 2015
VT-211	C-225	Area 6 Storage Tank	4,007 Area 6 storage units	Submerged Fill Pipe and Condenser	C-225	VOC	February 19, 2015
VT-212	C-225	Area 6 Storage Tank	6,684 Area 6 storage units	Condenser	C-225	N/A	February 19, 2015
APT-17	APT-17	Area 6 Storage Tank	1,535 Area 6 storage units	Level Control	N/A	VOC	February 19, 2015
APT-44	VT-21/250	Area 6 Storage Tank	327 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
APT-46	VT-21/250	Area 6 Storage Tank	57 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
APT-83	VT-21/250	Area 6 Storage Tank	512 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
APT-106	VT-21/250	Area 6 Storage Tank	512 Area 6 storage units	N/A	N/A	N/A	February 19, 2015

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
VT-183	VT-183	Area 6 Storage Tank	1,637 Area 6 storage units	Condenser	C-548	VOC	February 19, 2015
VT-184	VT-184	CL-64 Feed Tank	1,637 Area 6 storage units	Level Control	N/A	VOC	February 19, 2015
HT-09	HT-09	Area 6 Storage Tank	205 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
HT-26	HT-26	Area 6 Storage Tank	6,360 Area 6 storage units	Submerged Fill Pipe	N/A	VOC	February 19, 2015
HT-38	HT-38	Area 6 Storage Tank	119 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
HT-45	VT-21/250	Area 6 Storage Tank	597 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
HT-62	HT-62	Area 6 Storage Tank	1,705 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
HT-63	HT-63	Area 6 Storage Tank	409 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
HT-85	HT-85	Area 6 Storage Tank	2,728 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
HT-242	HT-242	Area 6 Storage Tank	3,274 Area 6 storage units	Submerged Fill Pipe	N/A	VOC	February 19, 2015
SE-157	SE-157	Jet Condensate Phase Separator	2,046 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
SP-001	SP-001	Area 6 Storage Tank	94 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-108	VT-108	Area 6 Storage Tank	4,638 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-113	VT-113	Area 6 Storage Tank	341 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-119	VT-119	Area 6 Storage Tank	324 Area 6 storage units	N/A	N/A	N/A	February 19, 2015

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
VT-021	VT-021	Area 6 Storage Tank	648 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-250	VT-250	Area 6 Storage Tank	1,961 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-390	VT-390	Area 6 Storage Tank	16,027 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-456	VT-456	Area 6 Storage Tank	136.4 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-680	VT-680	Area 6 Storage Tank	17,630 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-681	VT-681	Area 6 Storage Tank	10,230 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-693	VT-693	Area 6 Storage Tank	4,007 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-697	VT-697	Area 6 Storage Tank	9,002 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-752	VT-752	Area 6 Storage Tank	41 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-836	VT-836	Area 6 Storage Tank	102 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-863	VT-863	Area 6 Storage Tank	376,464 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-N2	C-XX2	Cyclohexanone Storage Tank	682,000 Area 6 storage units	Condenser	C-XX2	VOC	February 19, 2015
VT-N3	C-XX3	Cyclohexanone Storage Tank	272,884 Area 6 storage units	Condenser	C-XX3	VOC	February 19, 2015
VT-N4	C-XX4	Phenol Storage Tank	682,000 Area 6 storage units	Condenser (or equivalent)	C-XX4	VOC	February 19, 2015
VT-176	VT-176	Crude Phenol Storage Tank	49,104 Area 6 storage units	N/A	N/A	N/A	February 19, 2015

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
VT-180	VT-180	Area 6 Storage Tank	23,188 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
VT-188	VT-188	Area 6 Storage Tank	49,104 Area 6 storage units	N/A	N/A	N/A	February 19, 2015
RC-Nadone	VT-205	Nadone Rail Car Loading Rack	2,940 Area 6 loading units/hr	Vapor Recovery System	N/A	N/A	February 19, 2015
TT-Naxol	TT-Nax	Naxol Tanker Truck Loading Rack	368 Area 6 loading units/hr	N/A	N/A	N/A	February 19, 2015
Drum Naxol	DR-Nax	Naxol Drum Loading Rack	294 Area 6 loading units/hr	N/A	N/A	N/A	February 19, 2015
Drum Nadone	DR-Nad	Nadone Drum Loading Rack	294 Area 6 loading units/hr	N/A	N/A	N/A	February 19, 2015
TT Catalyst	TT-Cat	Hydrogenation Catalyst Tanker Truck Loading Rack	613 Area 6 loading units/hr	N/A	N/A	N/A	February 19, 2015
RC-A6 Copr	RC-A6	Area 6 Co-product Rail Car Loading Rack	588 Area 6 loading units/hr	Vapor Balance System	N/A	VOC	February 19, 2015
A6 CT	A6 CT	Four Area 6 Modular Cooling Towers	3,120 Area 6 cooling units/min total	N/A	N/A	N/A	February 19, 2015

Area 9:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Area 9	N/A	Area 9 Hydroxylamine Monoammonium Sulfate Production	46,498 Area 9 production units/hr	N/A	N/A	N/A	February 19, 2015
TW-2	TW-2	A-Train Ammonium Nitrite (Nitrite) Tower	3,623 Area 9 production units/hr ¹ 4,297 Area 9 production units/hr ²	Venturi Scrubber	N/A	N/A	February 19, 2015
TW-8	TW-8	B-Train Nitrite Tower	3,623 Area 9 production units/hr ¹ 4,297 Area 9 production units/hr ²	Venturi Scrubber	SE-179	PM	February 19, 2015
TW-17	TW-17	C-Train Nitrite Tower	3,623 Area 9 production units/hr ¹ 4,297 Area 9 production units/hr ²	Venturi Scrubber	N/A	N/A	February 19, 2015
TW-22	TW-22	D-Train Nitrite Tower	4,297 Area 9 production units/hr ¹ 4,655 Area 9 production units/hr ²	NOx Oxidizer Tank Venturi Scrubber	VT-883 SE-65	NOx PM	February 19, 2015
TW-32	TW-32	E-Train Nitrite Tower	4,297 Area 9 production units/hr ¹ 4,655 Area 9 production units/hr ²	NOx Oxidizer Tank Venturi Scrubber	VT-847 SE-116	NOx PM	February 19, 2015

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
TW-62	TW-62	A-Train Hydroxylamine Diammonium Sulfonate (Disulfonate) Tower	17,107 Area 9 production units/hr ¹ 18,252 Area 9 production units/hr ²	Packed Bed Scrubber Mist Eliminator	SE-45 SE-88	SO ₂ PM	February 19, 2015
TW-9	TW-9	B-Train Disulfonate Tower	17,107 Area 9 production units/hr ¹ 18,252 Area 9 production units/hr ²	Packed Bed Scrubber Mist Eliminator	SE-87 SE-89	SO ₂ PM	February 19, 2015
TW-18	TW-18	C-Train Disulfonate Tower	17,107 Area 9 production units/hr ¹ 18,252 Area 9 production units/hr ²	Packed Bed Scrubber Mist Eliminator	SE-19 SE-90	SO ₂ PM	February 19, 2015
TW-23	TW-23	D-Train Disulfonate Tower	18,252 Area 9 production units/hr ¹ 19,392 Area 9 production units/hr ²	Packed Bed Scrubber Mist Eliminator	SE-32 SE-91	NO _x , SO ₂ PM	February 19, 2015
TW-33	TW-33	E-Train Disulfonate Tower	18,252 Area 9 production units/hr ¹ 19,392 Area 9 production units/hr ²	Packed Bed Scrubber Mist Eliminator	SE-54 SE-101	NO _x , SO ₂ PM	February 19, 2015
Area 9 CT	Area 9 CT	Area 9 Modular Cooling Towers	5,200 Area 9 cooling units/min total	N/A	N/A	N/A	February 19, 2015

¹Capacity prior to selective catalytic reduction systems installation

²Capacity after selective catalytic reduction systems installation

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Area 9-New CT	Area 9-New CT	Area 9-New Modular Cooling Towers	2,080 Area 9 cooling units/min total	N/A	N/A	N/A	February 19, 2015
Quench CT	Quench CT	Area 9 Quench Modular Cooling Towers	208 Area 9 cooling units/min total	N/A	N/A	N/A	February 19, 2015
TW-37	TW-37	Area 9 Cooling Tower	6,240 Area 9 cooling units/min	N/A	N/A	N/A	February 19, 2015

Area 8/16:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Area 8/16	N/A	Area 8/16 Crude Caprolactam Production	48,415 Area 8 production units/hr	N/A	N/A	N/A	February 19, 2015
A8Rea	VT-664	Area 8 Cyclohexanone Oxime Rearrangement Reactor system (APT-8, APT-16, APT-32, SP-681, VT-96, VT-226, VT-404A, VT-664, VT-867)	48,415 Area 8 production units/hr	N/A	N/A	N/A	February 19, 2015
A8Tur	SE-325	A8 Turbogizer System (APT-128, VT-141, VT-243, VT-244, VT-817)	48,415 Area 8 production units/hr	Scrubber	N/A	VOC	February 19, 2015
A8Tur-Sep	SE-325	A8 Turbogizer Separation System (APT-14, APT-26, VT-59, VT-59New, HT-66)	48,415 Area 8 production units/hr	Scrubber	SE-325	VOC	February 19, 2015
APT-30	APT-30	Spare Oxime Hold Tank	25,260 Area 8 production units/hr	N/A	N/A	N/A	February 19, 2015
TW-20	TW-20	Cyclohexanone/sulfate Stripping Column	314,335 Area 8 production units/hr	N/A	N/A	N/A	February 19, 2015

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
LacSep	FU-16	Lactam/Sulfate/Emulsion Separation (APT-9, APT-10, HT-58, HT-74, HT-99, VT-246)	296,754 Area 8 production units/hr	Area 8/16 Thermal Oxidizer	FU-16	VOC	February 19, 2015
LacExt	FU-16	Caprolactam Extraction and Separation (CL-14, CL-45, SE-125)	218,095 Area 8 production units/hr	Area 8/16 Thermal Oxidizer	FU-16	VOC	February 19, 2015
CL-15	FU-16	Toluene/Sulfate Stripping Column	184,903 Area 8 production units/hr	Area 8/16 Thermal Oxidizer	FU-16	VOC	February 19, 2015
CL-81	FU-16	Toluene/Sulfate Stripping Column (formerly CL-15new)	184,903 Area 8 production units/hr	Area 8/16 Thermal Oxidizer	FU-16	VOC	February 19, 2015
CL-28, 29	FU-16	Toluizer Head Tanks	296,754 Area 8 production units/hr	Area 8/16 Thermal Oxidizer	FU-16	VOC	February 19, 2015
CL-29new	FU-16	Toluizer Head Tank	296,754 Area 8 production units/hr	Area 8/16 Thermal Oxidizer	FU-16	VOC	February 19, 2015
CL-62	FU-16	Toluene/Lactam Distillation Column	111,851 Area 8 production units/hr	Area 8/16 Thermal Oxidizer	FU-16	VOC	February 19, 2015
CL-62new	FU-16	Toluene/Lactam Distillation Column	111,851 Area 8 production units/hr	Area 8/16 Thermal Oxidizer	FU-16	VOC	February 19, 2015
HT-52	SE-325	Cyclohexanone Storage Tank	1,194 Area 8 storage units	Scrubber	SE-325	VOC	February 19, 2015
HT-53	FU-16	Toluene/Water Separator	40,416 Area 8 production units/hr	Area 8/16 Thermal Oxidizer	FU-16	VOC	February 19, 2015
VT-227	FU-16	Toluene Recovery Flash Tank	10,609 Area 8 production units/hr	Area 8/16 Thermal Oxidizer	FU-16	VOC	February 19, 2015
VT-245	FU-16	Toluene Storage Tank	1,083 Area 8 storage units	Area 8/16 Thermal Oxidizer	FU-16	VOC	February 19, 2015
VT-291	VT-291	Area 8/16 Storage Tank	8,225 Area 8 storage units	N/A	N/A	N/A	February 19, 2015
VT-343	VT-343	Area 8/16 Storage Tank	8,225 Area 8 storage units	N/A	N/A	N/A	February 19, 2015

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
VT-344	FU-16	CL-15 O/H Recovery Tank	36 Area 8 storage units	Area 8/16 Thermal Oxidizer	FU-16	VOC	February 19, 2015
VT-359	VT-359	Area 8/16 Storage Tank	24,064 Area 8 storage units	N/A	N/A	N/A	February 19, 2015
VT-365	VT-365	Area 8/16 Storage Tank	24,064 Area 8 storage units	N/A	N/A	N/A	February 19, 2015
VT-402, 668	VT-402	Lamella Separator	85,707 Area 8 production units/hr	N/A	N/A	N/A	February 19, 2015
CCM	FN-174, 175	Cobalt Catalyst Manufacturing (located in and operated by Area 9)	632 Area 8 production units	Baghouse	FN-182	PM	July 6, 1979
VT-403	VT-403	Area 8/16 Storage Tank	36 Area 8 storage units	N/A	N/A	N/A	February 19, 2015
VT-857	VT-857	Area 8/16 Storage Tank	83 Area 8 storage units	N/A	N/A	N/A	February 19, 2015
C-361	FU-16	Toluene Vent Condenser	594 Area 8 production units/hr	Area 8/16 Thermal Oxidizer	FU-16	VOC	February 19, 2015
SolLdg	FU-16	Area 8 Solvent Purge Loadout	192 Area 8 storage units/hr	Area 8/16 Thermal Oxidizer	FU-16	VOC	February 19, 2015
Area 8 CT	Area 8 CT	Area 8 Modular Cooling Towers	2,740 Area 8 cooling units/min	N/A	N/A	N/A	February 19, 2015
VT-221	FU-16	Toluene Storage Tank	752 Area 8 storage units	Area 8/16 Thermal Oxidizer	FU-16	VOC	February 19, 2015

Area 7:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Area 7	N/A	Area 7 Purified Caprolactam Production	3,035 Area 7 production units/hr	N/A	N/A	N/A	February 19, 2015
A7Pur	C-323	Caprolactam Distillation and Crystallization	3,035 Area 7 production units/hr	Condenser	C-323	VOC	February 19, 2015
A7Fil	FS-1 FS-2	Caprolactam Belt Filtration and Crystallization/Storage	3,035 Area 7 production units/hr	Fabric filter (x2)	FS-1; FS-2	PM	February 19, 2015
EV-8 EV-12	C-323	Two Caprolactam Strippers	3,035 Area 7 production units/hr	Condenser	C-323	VOC	February 19, 2015
EV-14 EV-15 EV-16	C-323	Three Caprolactam Dryers	3,035 Area 7 production units/hr	Condenser	C-323	VOC	February 19, 2015
EV-17 EV-18	C-323	Two Caprolactam Strippers	3,035 Area 7 production units/hr	Condenser	C-323	VOC	February 19, 2015
CL-70	C-323	Caprolactam Product Distillation Column	1,054 Area 7 production units/hr	Condenser	C-323	VOC	February 19, 2015
CL-39	Area 9	Purge Tower	136 Area 7 production units/hr	Sulfur burner	Variable	VOC/H ₂ S	February 19, 2015
CO-151	SE-149	Depoly Conveyor	850 Area 7 production units/hr	Scrubber	SE-149	PM/H ₂ S/VOC	February 19, 2015
HE-221	HE-221	Natural Gas-Fired Steam Superheater	4.24 MMBtu/hr	N/A	N/A	N/A	February 19, 2015
HE-305	HE-305	Natural Gas-Fired Steam Superheater	4.24 MMBtu/hr	N/A	N/A	N/A	February 19, 2015
HT-43	HT-43	Area 7 Storage Tank	450 Area 7 storage units	N/A	N/A	N/A	February 19, 2015
VT-36	C-323	Bottoms Concentrator	3,035 Area 7 production units/hr	Condenser	C-323	VOC	February 19, 2015
VT-40	VT-40	Area 7 Storage Tank	450 Area 7 storage units	N/A	N/A	N/A	February 19, 2015

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
VT-121	SE-149	Depoly Feed Storage	880 Area 7 storage units	Scrubber	SE-149	VOC/H ₂ S	February 19, 2015
VT-127	SE-149	Depoly Feed Storage	300 Area 7 storage units	Scrubber	SE-149	VOC/H ₂ S	February 19, 2015
VT-220	C-323	Water Stripper	3,035 Area 7 production units/hr	Condenser	C-323	VOC	February 19, 2015
VT-297	VT-297	Area 7 Storage Tank	37,500 Area 7 storage units	N/A	N/A	N/A	February 19, 2015
VT-327	C-323	Caprolactam Dryer	3,035 Area 7 production units/hr	Condenser	C-323	VOC	February 19, 2015
VT-360	VT-360	Area 7 Storage Tank	37,500 Area 7 storage units	N/A	N/A	N/A	February 19, 2015
VT-903	VT-903	Area 7 Storage Tank	3,250 Area 7 storage units	N/A	N/A	N/A	February 19, 2015
VT-XX1	VT-XX1	Area 7 Storage Tank	50 Area 7 storage units	N/A	N/A	N/A	February 19, 2015
VT-XX2	VT-XX2	Area 7 Storage Tank	2,500 Area 7 storage units	N/A	N/A	N/A	February 19, 2015
VT-394	C-323	Washwater/wastewater concentrator	153 Area 7 production units/hr	Condenser	C-323	VOC	February 19, 2015
VT-395	C-323	Caprolactam Stripper	1,600 Area 7 storage units	Condenser	C-323	VOC	February 19, 2015
VT-799	C-323	Caprolactam Stripper	1,600 Area 7 storage units	Condenser	C-323	VOC	February 19, 2015
APT-22, 23, 24, 25, 39, 40, 41, 42	C-323	A/C/D-Train Crystallization/Purification Systems	3,035 Area 7 production units/hr	Condenser	C-323	VOC	February 19, 2015
CL-21	C-323	Caprolactam Purification Column	3,485 Area 7 production units/hr	Condenser	C-323	VOC	February 19, 2015

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
CL-12	C-323	Washwater/wastewater concentrator	340 Area 7 production units/hr	Condenser	C-323	VOC	February 19, 2015
B7Fug	B7Fug	Building 7 Fugitive Emissions from Area 7 Filtration	3,035 Area 7 production units/hr	N/A	N/A	N/A	February 19, 2015
VP-6-14 VP-17-20	VP-6-14 VP-17-20	Thirteen Belt Filter Vacuum Pumps	3,035 Area 7 production units/hr	N/A	N/A	N/A	February 19, 2015
VA-19	CL-39	Depoly Vaporizer	136 Area 7 production units/hr	N/A	N/A	N/A	February 19, 2015
Area 7 Storage	Misc. Storage Tanks	Fifty-One (51) Miscellaneous Area 7 Organic Liquid Storage Tanks including: HT-03; HT-04; HT-20; HT-28; HT-47; HT-48; HT-61; PFR-01; SP-01; SP-505; SP-734; SP-930; VT-28; VT-37; VT-39; VT-46; VT-47; VT-55; VT-58; VT-62; VT-64; VT-114; VT-129; VT-137; VT-139; VT-140; VT-142; VT-143; VT-152; VT-157; VT-158; VT-159; VT-160; VT-161; VT-162; VT-165; VT-192; VT-193; VT-196; VT-222; VT-224; VT-236; VT-325; VT-332; VT-341; VT-460; VT-490; VT-491; VT-813; VT-838; VT-854; VT-967; VT-968; VT-969	13,000 Area 7 storage units max. capacity	N/A	N/A	N/A	February 19, 2015
A7Ldg	A7Ldg	Area 7 Caprolactam Loading Rack	43 Area 7 loading units/hr	N/A	N/A	N/A	February 19, 2015
A7W/W	A7W/W	Area 7 Washwater/Wastewater Loading Rack	5,406 Area 7 loading units/hr	N/A	N/A	N/A	February 19, 2015

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Remelt	SC-61	Caprolactam Remelt facility	442 Area 7 production units/hr	Scrubber	SC-61	PM/VOC	February 19, 2015
Area 7 CRU	Area 7 CRU	Area 7 Caprolactam Recovery Unit	272 Area 7 production units/hr	N/A	N/A	N/A	February 19, 2015
EV-46	FU-16	Area 7 CRU Thin Film Evaporator	272 Area 7 production units/hr	Area 8/16 Thermal Oxidizer	FU-16	VOC	February 19, 2015
VT-966	FU-16	Area 7 CRU Residue Recovery Tank (formerly VT-XXX1)	96 Area 7 storage units	Area 8/16 Thermal Oxidizer	FU-16	VOC	February 19, 2015
FL-6	SE-149	Area 7 CRU Residue Flaker	42.5 Area 7 production units/hr	Scrubber	SE-149	PM/VOC	February 19, 2015
VT-XXX2	VT-XXX2	Caprolactam Recovery Tank	26.5 Area 7 storage units	N/A	N/A	N/A	February 19, 2015
VT-XXX4	VT-XXX4	Caprolactam Recovery Tank	15 Area 7 storage units	N/A	N/A	N/A	February 19, 2015
VT-XXX3	VT-XXX3	Dilute Caprolactam Tank	26.5 Area 7 storage units	N/A	N/A	N/A	February 19, 2015
BT-10	BT-10	Natural Gas-Fired Thermal Oil Heater	4.3 MMBtu/hr	N/A	N/A	N/A	February 19, 2015
HT-XXX1 HT-XXX2	HT-XXX1 HT-XXX2	Two Thermal Oil Storage Tanks	35 Area 7 storage units 10 Area 7 storage units	N/A	N/A	N/A	February 19, 2015
FL-1	SC-61	Area 8 Flaker #1	281 Area 7 production units/hr	Scrubber	SC-61	PM/VOC	February 19, 2015
FL-5	SC-68	Area 8 Flaker #2	281 Area 7 production units/hr	Scrubber	SC-68	PM/VOC	February 19, 2015
FL-7	APCD-DS	Area 8 Flaker #3	306 Area 7 production units/hr	Scrubber	APCD-DS	PM/VOC	February 19, 2015

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Area 7 CT	Area 7 CT	Area 7 Modular Cooling Towers	1,151 Area 7 cooling units/min total	N/A	N/A	N/A	February 19, 2015
TW-71	TW-71	Area 7 Cooling Tower	7,398 Area 7 cooling units/min	N/A	N/A	N/A	February 19, 2015
TW-85	TW-85	Area 7 Cooling Tower	1,589 Area 7 cooling units/min	N/A	N/A	N/A	February 19, 2015

Area 11:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Area 11	N/A	Area 11 Ammonium Sulfate Production	10,710 Area 11 production units/hr	N/A	N/A	N/A	February 19, 2015
RD-3	DC-7	Ammonium Sulfate Dryer	2,800 Area 11 production units per hour	Scrubber	DC-7	PM/VOC	February 19, 2015
RD-4	DC-11	Ammonium Sulfate Dryer	3,800 Area 11 production units per hour	Scrubber	DC-11	PM/VOC	February 19, 2015
RD-6	DC-12	Ammonium Sulfate Dryer	2,800 Area 11 production units per hour	Scrubber	DC-12	PM/VOC	February 19, 2015
RD-7	DC-29	Ammonium Sulfate Dryer	2,800 Area 11 production units per hour	Scrubber	DC-29	PM/VOC	February 19, 2015
EV-9 EV-28 EV-29	EV-9 EV-28 EV-29	Three First Effect Ammonium Sulfate Crystallizers	4,200 Area 11 production units/hr total	N/A	N/A	N/A	February 19, 2015

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
EV-30 EV-35	EV-30 EV-35	Two Second Effect Ammonium Sulfate Crystallizers	3,990 Area 11 production units/hr total	N/A	N/A	N/A	February 19, 2015
EV-19 EV-26 EV-27	C-55 C-270 C-150	Three Third Effect Ammonium Sulfate Crystallizers	3,780 Area 11 production units/hr total	Condenser Condenser Condenser	C-55 C-270 C-150	VOC VOC VOC	February 19, 2015
Area 11 CT	Area 11 CT	Area 11 Modular Cooling Towers	20 Area 11 cooling units/min	N/A	N/A	N/A	February 19, 2015
A11CTF	DC-25	Ammonium Sulfate Centrifuges	10,710 Area 11 production units per hour	Scrubber	DC-25	PM/VOC	February 19, 2015
VT-873	VT-873	Ammonium Sulfate Coating	441 Area 11 production units (volume)/hr	N/A	N/A	N/A	February 19, 2015
VT-796	VT-796	Ammonium Sulfate Coating	1,239 Area 11 production units (volume)/hr	N/A	N/A	N/A	February 19, 2015
DC-21	DC-21	Building 12 Ammonium Sulfate Screening and Storage Operation – Dust Collector Point Source	80.3 Area 11 storage units per hour	Scrubber	DC-21	PM/VOC	February 19, 2015
DC-31	DC-31	Building 12 Ammonium Sulfate Screening and Storage Operation – Fabric Filter Point Source	80.3 Area 11 storage units per hour	Fabric Filter	DC-31	PM/PM-10	February 19, 2015
N/A	Fugitive	Building 12 Ammonium Sulfate Screening and Storage Operation – Fugitive Emissions	80.3 Area 11 storage units/hr	N/A	N/A	N/A	February 19, 2015
SC-65, 66, 67	DC-21	Three (3) Triple Deck Screens	6,300 Area 11 production units per hour each	Scrubber	DC-21	PM/PM-10	February 19, 2015

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
CO-225	DC-21	Ammonium Sulfate Mid-Grade Conveyor	6,300 Area 11 production units per hour	Scrubber	DC-21	PM/PM-10	February 19, 2015
BN-11	DC-31	Ammonium Sulfate Bulk Storage Bin/Loading Station	252 Area 11 storage units per hour	Fabric Filter	DC-31	PM/PM-10	February 19, 2015
CO-226	DC-31	Ammonium Sulfate Bulk Storage Bin Conveyor	47.3 Area 11 storage units per hour	Fabric Filter	DC-31	PM/PM-10	February 19, 2015
EL-25	DC-31	Ammonium Sulfate Bulk Storage Bin Elevator	47.3 Area 11 storage units per hour	Fabric Filter	DC-31	PM/PM-10	February 19, 2015
N/A	Fugitive	Ammonium Sulfate Handling and Loading Operation (Railcar/Ship/Barge/Truck)	252 Area 11 storage units per hour	Dustrol anti-caking agent and Enclosed Drop Loading Chute	N/A	PM/PM-10	February 19, 2015

Sulfuric Acid Plant (SAP):

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
SAP	SK-1	Sulfuric Acid Plant	10,296 sulfuric acid production units/hr	Sulfite Scrubber Mist Eliminator	TW-38 SE-105	SO ₂ PM	February 19, 2015
VT-436	VT-436	Sulfur Storage Tank	3 SAP tank units	N/A	N/A	N/A	February 19, 2015
VT-437	VT-437	Oleum/Acid Storage Tank	24 SAP tank units	N/A	N/A	N/A	February 19, 2015
VT-439	CL-71	Acid Storage Tank	1.5 SAP tank units	Scrubber	CL-71	SO ₂	February 19, 2015
VT-441	VT-441	Sulfur Storage Tank	60 SAP tank units	N/A	N/A	N/A	February 19, 2015
VT-442	VT-442	Sulfur Storage Tank	60 SAP tank units	N/A	N/A	N/A	February 19, 2015
VT-443	VT-443	Sulfur Storage Tank	3 SAP tank units	N/A	N/A	N/A	February 19, 2015
VT-746	VT-746	Oleum Storage Tank	24 SAP tank units	N/A	N/A	N/A	February 19, 2015
VT-747	FS-3	Oleum Storage Tank	24 SAP tank units	N/A	N/A	N/A	February 19, 2015

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
N/A	N/A	Oleum Truck/Rail Loading Operation	46.8 SAP truck loading units/hr	N/A	N/A	N/A	February 19, 2015

Kellogg/Girdler Ammonia/Synthetic Gas (Syngas) Plants:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
FU-1	FU-1	Kellogg Primary Reformer and Auxiliary Boiler	9.1 syngas heat input units/hr	Low Pressure Purge	GC-11	NOx	February 19, 2015
FU-5	FU-5	Ammonia Converter Start-up Heater	0.3 syngas heat input units/hr	N/A	N/A	N/A	February 19, 2015
FU-6	FU-6	Girdler Primary Reformer	0.6 syngas heat input units/hr	N/A	N/A	N/A	February 19, 2015
VT-418	VT-418	CO ₂ Strippers	139,339 CO ₂ stripper units/hr	N/A	N/A	N/A	February 19, 2015
CD-1	CD-1	Kellogg Desulfurization Drum	746 Kellogg desulfurization units/hr	N/A	N/A	N/A	February 19, 2015
CD-3 CD-4	CD-4	Girdler Desulfurization Drums	10,514 Girdler desulfurization units/hr	N/A	N/A	N/A	February 19, 2015
CLT-1	CLT-1	Kellogg Primary Reformer Cooling Tower	9,306 syngas cooling units/min	N/A	N/A	N/A	February 19, 2015
Kel SCT	Kel SCT	Kellogg Supplemental Cooling Tower	2,376 syngas cooling units/hr	N/A	N/A	N/A	February 19, 2015
VT-407 VT-426 VT-427	VT-407 VT-426 VT-427	Kellogg Storage Vessels	5,103 syngas storage units	N/A	N/A	N/A	February 19, 2015
VT-882 HT-214	VT-882 HT-214	Two (2) Kellogg Condensate Collection Vents	5,103 syngas storage units	N/A	N/A	N/A	February 19, 2015

Powerhouse Combustion Equipment:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
FU-17	S-102	Powerhouse Boiler-equipped with oxygen trim system, combusting natural gas with or without Area 6 residue, or #2 oil with or without Area 6 residue	275.2 MMBtu/hr	Low NOx Burners with Flue Gas Recirculation (FGR)	N/A	NOx	April 24, 2020
				Fabric Filter*	DC-32	PM	N/A*
VT-444	VT-44	Area 6 Residue Storage Tank	2,947,943 gallons	N/A	N/A	N/A	February 19, 2015

*The FU-17 boiler was originally constructed with a fabric filter which was necessary for CISWI compliance. Upon a change in the applicability of the rule by determining that Area 6 Residue is a non-hazardous secondary material under revised regulatory language, it was determined that CISWI no longer applies to combustion of Area 6 residue in the FU-17 boiler. However, the FU-17 boiler is subject to MACT Subpart DDDDD, and compliance with the emission limits of the MACT could potentially require the use of the fabric filter. Consequently, DC-32 is listed in the equipment table as a control device which is physically present, although it is not relied on or required at this time.

SULF-N26 Pilot Plant:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Pilot Plant	N/A	SULF-N26 Pilot Plant	0.6 Fiorelli units/hr	N/A	N/A	N/A	February 19, 2015
AS TU	Fugitive	Ammonium Sulfate Rail Car Unloading	0.4 Fiorelli units/hr	N/A	N/A	N/A	February 19, 2015
U-10	Fugitive	Ammonium Sulfate Receiving Hopper	0.4 Fiorelli units/hr	N/A	N/A	N/A	February 19, 2015
M-10	APCD-DC1	Ammonium Sulfate Grinding and Screening Operation	0.4 Fiorelli units/hr	Fabric Filter	APCD-DC1	PM	February 19, 2015
U-13	APCD-DM	Ammonium Sulfate Slurry Prill Tower	0.6 Fiorelli units/hr	Scrubber	APCD-DM	PM	February 19, 2015
U-13	APCD-DC2	Ammonium Sulfate Slurry Dryer/Cooler	0.6 Fiorelli units/hr	Fabric Filter	APCD-DC2	PM	February 19, 2015
U-13	E-15	FASN (Fusion Ammonium Sulfate Nitrate) Mix Tank	0.6 Fiorelli units/hr	Condenser	E-15	PM	February 19, 2015

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
SP	Fugitive	SULF-N26 Storage	0.6 Fiorelli units/hr	N/A	N/A	N/A	February 19, 2015
26 TL	Fugitive	SULF-N26 Truck Loading	0.6 Fiorelli units/hr	N/A	N/A	N/A	February 19, 2015

Area 14:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
VT-853	VT-853	MEKO primary reactor	8,400 Area 14 production units/hr	N/A	N/A	N/A	January 31, 2014
APT-136	VT-853	MEKO secondary reactor	8,400 Area 14 production units/hr	N/A	N/A	N/A	January 31, 2014
VT-215/217	TW-74	Two (2) MEK Storage Tanks	7,262.5 Area 14 storage units each	Koch Packed Tower Absorber	TW-74	VOC	January 31, 2014
CL-16	C-111	Aq. Ammonium Sulfate Stripping Column	8,064 Area 14 production units/hr	N/A	N/A	N/A	January 31, 2014
HT-55	HT-55	Crude MEKO/aq. Ammonium Sulfate Phase Separator	588 Area 14 production units/hr	N/A	N/A	N/A	January 31, 2014
SE-170	SE-170	Crude MEKO/Water Phase Separator	42 Area 14 production units/hr	N/A	N/A	N/A	January 31, 2014
Misc A14 Storage Tanks	Misc	Eight (8) Miscellaneous A14 Storage Tanks	16,021 Area 14 storage units total	N/A	N/A	N/A	January 31, 2014

Honeywell Specialty Products Plant:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
MEKO-1		Honeywell Specialty Products MEKO Manufacturing Process, including:	751.7 Honeywell Chemicals production units/hr	Thermal Oxidizer	FU-14	VOC	January 31, 2014

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
	TW-75	MEKO Lites Distillation Column	751.7 Honeywell Chemicals production units/hr	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	TW-76	MEKO Product Distillation Column	649.6 Honeywell Chemicals production units/hr	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	VT-851; 852	Two (2) MEKO Product Run Tanks	7.5 Honeywell Chemicals storage units each	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	HT-258	MEKO Product Tower Reflux Tank	0.6 Honeywell Chemicals storage units	Thermal Oxidizer	FU-14	VOC	January 8, 19
	HT-259	MEKO Scum Tank	9 Honeywell Chemicals storage units	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	VT-728	Crude MEKO Storage Tank	30 Honeywell Chemicals storage units	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	HT-200	MEKO Separator Overflow Pot	3 Honeywell Chemicals storage units	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	HT-230	Aq. MEKO Storage Tank	6 Honeywell Chemicals storage units	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	VT-779	Catch Tank	10.2 Honeywell Chemicals storage units	N/A	N/A	N/A	January 31, 2014
	VT-787	MEKO Product Storage Tank	180 Honeywell Chemicals storage units	N/A	N/A	N/A	January 31, 2014

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
	VT-788	Aq. MEKO Storage Tank	18 Honeywell Chemicals storage units	N/A	N/A	N/A	January 31, 2014
	VT-856	MEKO Vacuum Seal Pot	0.15 Honeywell Chemicals storage units	Thermal Oxidizer	FU-14	VOC	January 31, 2014
OX-1		Honeywell Chemicals Multi-Purpose Oximes Production Unit; including	348 Honeywell Chemicals production units/hr	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	VT-614	First Stage Oximotor	116 Honeywell Chemicals production units	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	APT-117	Second Stage Oximotor	127.6 Honeywell Chemicals production units	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	CL-54	Aq. Ammonium Sulfate Stripping Column	348 Honeywell Chemicals production units/hr	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	CL-55	Lites Distillation Column	229 Honeywell Chemicals production units/hr	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	CL-56	Product Distillation Column	229 Honeywell Chemicals production units/hr	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	SE-301 SE-302	Two (2) Phase Separators	69.6 Honeywell Chemicals production units/hr each	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	C-516 C-517	Two (2) Vacuum Systems with After-Condensers	69.6 Honeywell Chemicals production units/hr each	Thermal Oxidizer	FU-14	VOC	January 31, 2014

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
	HT-187	Pressurized Acetaldehyde (AA)/Methyl Isobutyl Ketone (MIBK)/Methyl Propyl Ketone (MPK) Storage Tank	102 Honeywell Chemicals storage units	N/A	N/A	N/A	January 31, 2014
	VT-953	Seal Pot	69.6 Honeywell Chemicals production units/hr	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	MX-53	Static Mixer	69.6 Honeywell Chemicals production units/hr	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	HA-103	Reflux Drum	0.05 Honeywell Chemicals storage units	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	HA-104	Reflux Drum	0.2 Honeywell Chemicals storage units	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	HA-112	Aq. Ammonium Sulfate Reflux Drum	0.04 Honeywell Chemicals storage units	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	HA-113	Aq. Ammonium Sulfate Product Drum	0.04 Honeywell Chemicals storage units	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	VT-603	Aq. Ammonium Sulfate Storage Tank	38.1 Honeywell Chemicals storage units	N/A	N/A	N/A	January 31, 2014
	VT-615	CL-54 O/H Receiver Tank	1.5 Honeywell Chemicals storage units	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	VT-616	Recycle Tank	38.1 Honeywell Chemicals storage units	N/A	N/A	N/A	January 31, 2014

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
	VT-617 VT-618	Two (2) Product Hold Tanks	7.5 Honeywell Chemicals storage units each	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	VT-621	Aq. Sulfate Feed Tank/Recycle Tank	9 Honeywell Chemicals storage units	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	VT-757	AAO Product Tank	375 Honeywell Chemicals storage units	N/A	N/A	N/A	January 31, 2014
	TT-RR	AAO/MIBKO/2-PO Tanker Truck/Rail Car Loading Operation	10.8 Honeywell Chemicals storage units/hr	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	N/A	AAO/MEKO Drum Loading Operation	2.7 Honeywell Chemicals storage units/hr	Thermal Oxidizer	FU-14	VOC	January 31, 2014
	N/A	Acetaldehyde (AA) /Methyl Isobutyl Ketone (MIBK) /methyl Propyl Ketone (MPK) Unloading and Storage Facility	163.5 Honeywell Chemicals storage units/hr	N/A	N/A	N/A	January 31, 2014
	TW-77	Cooling Tower	10,400 gallons/min	N/A	N/A	N/A	January 31, 2014

Miscellaneous Emission Units:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
FP-1	FP-1	Building 35 diesel fire pump #1	288 HP	N/A	N/A	N/A	N/A
FP-2	FP-2	Building 35 diesel fire pump #2	340 HP	N/A	N/A	N/A	N/A
FP-3	FP-3	Area 6 diesel fire pump	170 HP	N/A	N/A	N/A	N/A
FP-4	FP-4	Kellogg diesel fire pump	194 HP	N/A	N/A	N/A	N/A
GEN-2	GEN-2	Kellogg UPS diesel engine (emergency)	160 HP	N/A	N/A	N/A	N/A
GEN-3	GEN-3	South side diesel emergency generator	277 HP	N/A	N/A	N/A	N/A
GEN-4	GEN-4	Diesel generator for emergency wet well pumps	600 HP	N/A	N/A	N/A	N/A
PW-8	PW-8	(2) Safe-T-Kleen parts washers	<5 tons/yr VOC	N/A	N/A	N/A	N/A
PW-9	PW-9	(3) Safe-T-Kleen parts washers	<5 tons/yr VOC	N/A	N/A	N/A	N/A
PW-17	PW-17	(2) Safe-T-Kleen parts washers	<5 tons/yr VOC	N/A	N/A	N/A	N/A
PW-26	PW-26	(4) Safe-T-Kleen parts washers	<5 tons/yr VOC	N/A	N/A	N/A	N/A
PW-77	PW-77	(4) Safe-T-Kleen parts washers	<5 tons/yr VOC	N/A	N/A	N/A	N/A

*The Size/Rated capacity is provided for informational purposes only, and is not an applicable requirement.

Area 6 Cyclohexanone Production

Limitations

Control Requirements

1. Volatile Organic Compound (VOC) emissions from the Area 6 continuous cyclohexanone hydrogenation reactor system (A6-Hydro) shall be controlled by venting these emissions to the M. W. Kellogg Ammonia Production Plant (Kellogg) for incineration. The emissions vented to the Kellogg facility shall include any A6-Hydro emissions bypassing the cryogenics facility and all A6-Hydro emissions entering the cryogenics facility except for emissions resulting from depressurizing the Area 6 cryogenics carbon beds (F-119, F-120). The TOC reduction efficiency of the Kellogg facility as an incinerator shall be at least 98%. (Condition #25 of the 2/19/2015 New Source Review (NSR) Permit and 9VAC5-80-110)
2. VOC emissions resulting from the depressurizing of the Area 6 cryogenics carbon beds (F-119, F-120), the venting of Area 6 continuous cyclohexanone hydrogenation reactor system (A6-Hydro) during cryogenic outages and the cyclohexanol batch reactor (APT-1) shall be controlled by a non-assisted flare (FLS-61). The reduction efficiency of the flare shall be at least 98%. (Condition #26 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
3. VOC emissions from the continuous cyclohexanone catalyst centrifuges (CT-48, CT-53, CT-55), cyclohexanol distillation column CL-9, the combined vent from cyclohexanone distillation columns CL-2 and CL-18, cyclohexanol distillation column CL-17, cyclohexanone distillation column CL-26, cyclohexanol distillation column CL-80, and cyclohexanone distillation column CL-65new shall be controlled by a non-assisted flare (FLS-62). The reduction efficiency of the flare shall be at least 98%. (Condition #E.4 of the 3/26/1997 RACT Agreement, Condition #27 of the 2/19/2015 NSR Permit, and 9VAC5-80-110)
4. VOC emissions from the cyclohexanone/cyclohexanol storage tank (VT-005) shall be controlled by installation of a submerged fill pipe. Volatile Organic Compound emissions from the Nadone rail car loading rack (RC-Nadone) shall be controlled by a vapor balance system directed to VT-205. (Condition #28 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
5. VOC emissions from each cyclohexanone storage tank (VT-N2 and VT-N3) shall be controlled by a glycol/water refrigerated condenser. The permittee shall operate and maintain each condenser at or below a daily average outlet temperature of 60 °F. (Condition #29 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
6. VOC emissions from the phenol storage tank (VT-N4) shall be controlled by a water-cooled condenser or an equivalent control technology approved by the Piedmont Regional Office. The permittee shall operate and maintain the condenser at or below a daily average outlet temperature of 120 °F. (Condition #30 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
7. Fugitive VOC emissions resulting from equipment leaks from components resulting from the construction of VT-N2, VT-N3 and VT-N4 shall be controlled through a Leak Detection and Repair (LDAR) program. The LDAR program shall be substantively equivalent to the LDAR requirements specified in 40 CFR 63, Subpart H. (Condition #31 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

8. Particulate emissions from the Area 6 modular cooling towers shall be controlled by limiting the total dissolved solids of the cooling water to 2,500 parts per million as an annual average (12-month rolling basis) and by the use of cooling towers designed to limit cooling tower liquid drift to 0.001% or less. (Condition #32 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
9. VOC emissions from the CL-80 feed tank (VT-007) shall be controlled by a water-cooled product recovery condenser. The removal efficiency of the condenser shall be at least 95%. The permittee shall operate and maintain the condenser at or below a daily average outlet temperature of 132 °F. (Condition #33 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
10. VOC emissions from the cyclohexanone distillation column (CL-26) shall be controlled by a product recovery condenser. The removal efficiency of the condenser shall be at least 70%. The permittee shall operate and maintain the condenser at or below the daily average outlet temperature that ensures continuous compliance with the requirements of this condition. (Condition #34 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
11. VOC emissions from the cyclohexanone distillation column (CL-36) shall be controlled by a product recovery condenser. The removal efficiency of the condenser shall be at least 70%. The permittee shall operate and maintain the condenser at or below the daily average outlet temperature that ensures continuous compliance with the requirements of this condition and the emission limit contained in Condition #33. (Condition #35 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
12. VOC emissions from the cyclohexanone distillation column (CL-64) shall be controlled by a product recovery condenser. The removal efficiency of the condenser shall be at least 70%. The permittee shall operate and maintain the condenser at or below the daily average outlet temperature that ensures continuous compliance with the requirements of this condition and the emission limit contained in Condition #34. (Condition #36 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
13. VOC emissions from the cyclohexanone distillation column (CL-65) shall be controlled by a product recovery condenser. The removal efficiency of the condenser shall be at least 70%. The permittee shall operate and maintain the condenser at or below the daily average outlet temperature that ensures continuous compliance with the requirements of this condition and the emission limit contained in Condition #35. (Condition #37 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
14. VOC emissions from the phenol purification reactors (APT-66B, APT-67B), the phenol distillation residue storage tank (VT-210) and Area 6 storage tanks VT-211 and VT-212 shall be controlled by a common product recovery condenser. VOC emissions from VT-210 shall also be minimized by operating VT-210 such that no flashing of organic liquids occurs. The permittee shall operate and maintain the condenser at or below a daily average outlet temperature of 150 °F. (Condition #38 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
15. Fugitive VOC emissions resulting from equipment leaks in those portions of Area 6 not already subject to fugitive emissions requirements from other applicable regulations shall be controlled through a Leak Detection and Repair (LDAR) program. The LDAR program shall be substantively equivalent to the LDAR requirements specified in 40 CFR 60, Subpart VV. (Condition #E.7 of the 3/26/1997 RACT Agreement and 9VAC5-80-110)
16. VOC emissions from storage tanks HT-242, HT-026, VT-005, VT-010, VT-029, VT-210, VT-211 and any railcars or tanker trucks used for the storage of Area 6 organics shall be controlled by a control method that will remove, destroy or prevent the discharge into the atmosphere of at least 60% by weight of VOC

emissions during the filling of such tank. The use of a submerged fill pipe or bottom filling shall be considered acceptable achievement of this standard.
(9VAC5-40-3430 A and 9VAC5-40-3440 A and 9VAC5-80-110)

17. VOC emissions from storage tanks APT-17, VT-183 and VT-184 shall be controlled by a control method that will remove, destroy or prevent the discharge into the atmosphere of at least 60% by weight of VOC emissions during the filling of such tank. The use of a level control system shall be considered acceptable achievement of this standard.
(9VAC5-40-3430 A and 9VAC5-40-3440 A and 9VAC5-80-110)

Throughput Limits

18. The annual input of phenol to Area 6 cyclohexanone production shall not exceed 3,292,000 Area 6 phenol units per year, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #39 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
19. The annual input of crude cyclohexanone to CL-2 shall not exceed 48,512,880 Area 6 cyclohexanone units per year, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #40 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
20. The annual input of crude cyclohexanol to CL-9 shall not exceed 4,774,200 Area 6 cyclohexanol units per year, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #41 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
21. The annual input of crude cyclohexanol to CL-17 shall not exceed 10,503,240 Area 6 cyclohexanol units per year, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #42 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
22. The annual input of crude cyclohexanone to CL-18 shall not exceed 67,171,680 Area 6 cyclohexanone units per year, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #43 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
23. The annual input of crude cyclohexanone to CL-26 shall not exceed 277,872,984 Area 6 cyclohexanone units per year, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #44 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
24. The annual input of crude cyclohexanone to CL-36 shall not exceed 167,929,200 Area 6 cyclohexanone units per year, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #45 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
25. The annual input of crude cyclohexanone to CL-80 shall not exceed 65,305,800 Area 6 cyclohexanone units per year, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #46 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
26. The annual input of purified phenol to CL-64 shall not exceed 733,760 Area 6 phenol units per year, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #47 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

27. The annual input of crude cyclohexanone to CL-65 shall not exceed 167,929,200 Area 6 cyclohexanone units per year, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #48 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
28. The annual input of crude cyclohexanone to CL-65new shall not exceed 167,929,200 Area 6 cyclohexanone units per year, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #49 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
29. Total sales cyclohexanone (Nadone) loaded to railcars or tank trucks shall not exceed 14,934,434 Area 6 loading units per year, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #50 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
30. The annual input of cyclohexanone to VT-N2 and VT-N3 shall not exceed 32,333,620 and 4,310,240 Area 6 storage units per year, respectively, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #51 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
31. The annual input of phenol to VT-N4 and VT-210 shall not exceed 30,059,150 and 971,850 Area 6 storage units per year, respectively, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #52 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Emission Limits

32. Emissions from the operation of Area 6 cyclohexanone production (inclusive of all emission units specified in the Area 6 section of Condition #2 of the 2/19/2015 NSR permit and the fugitive emissions limited by Condition #46) shall not exceed the limits specified below:

VOC	150.0 lb/hr	64.35 tons/yr
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(Condition #55 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

33. Emissions from the product recovery condenser from the operation of the CL-36 shall not exceed the limits specified below:

VOC	3096 lbs every 30 days*	1.5 tons/yr
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*The short term limits shall be determined on a 30-day basis calculated daily.

(Condition #56 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

34. Emissions from the product recovery condenser from the operation of CL-64 shall not exceed the limits specified below:

VOC	720 lbs every 30 days*	1.1 tons/yr
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*The short term limits shall be determined on a 30-day basis calculated daily.

(Condition #57 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

35. Emissions from the product recovery condenser from the operation of CL-65 shall not exceed the limits specified below:

VOC	2016 lbs every 30 days	4.3 tons/yr
-----	------------------------	-------------

*The short term limits shall be determined on a 30-day basis calculated daily.
 (Condition #58 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

36. Emissions from the combined operation of APT-66B, APT-67B, VT-210, VT-211 and VT-212 as exhausted through their common product recovery condenser, shall not exceed the limits specified below:

VOC	6.9 lb/hr	2.5 tons/yr
-----	-----------	-------------

(Condition #59 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

37. Emissions from the operation of the Area 6 non-assisted flare (FLS-61 and FLS-62) shall not exceed the limits specified below:

Nitrogen Oxides	10.6 lb/hr	7.5 tons/yr
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Carbon Monoxide	88.5 lb/hr	56.4 tons/yr
-----------------	------------	--------------

VOC	10.2 lb/hr	6.0 tons/yr
-----	------------	-------------

(Condition #60 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

38. Emissions from the operation of the sales cyclohexanone (Nadone) tank car and tank truck loading operation shall not exceed the limits specified below:

VOC	15.4 lb/hr	2.1 tons/yr
-----	------------	-------------

(Condition #61 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

39. Emissions from the operation of the CL-80 feed tank (VT-007) shall not exceed the limits specified below:

VOC	1.3 lb/hr	0.95 tons/yr
-----	-----------	--------------

(Condition #62 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

40. Emissions from the operation of the crude phenol storage tank (VT-176) shall not exceed the limits specified below:

VOC	13.2 lb/hr	2.2 tons/yr
-----	------------	-------------

(Condition #63 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

41. Emissions from the operation of the CL-64 Feed tank (VT-184) shall not exceed the limits specified below:
- | | | |
|-----|------------|-------------|
| VOC | 71.4 lb/hr | N/A tons/yr |
|-----|------------|-------------|
- (Condition #64 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
42. Emissions from the operation of the crude phenol storage tanks (VT-462, VT-515) shall individually not exceed the limits specified below:
- | | | |
|-----|------------|-------------|
| VOC | 77.7 lb/hr | 4.2 tons/yr |
|-----|------------|-------------|
- (Condition #65 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
43. Emissions from the operation of the cyclohexanone storage tank (VT-N2) shall not exceed the limits specified below:
- | | | |
|-----|-----------|-------------|
| VOC | 1.5 lb/hr | 3.3 tons/yr |
|-----|-----------|-------------|
- (Condition #66 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
44. Emissions from the operation of the cyclohexanone storage tank (VT-N3) shall not exceed the limits specified below:
- | | | |
|-----|-----------|-------------|
| VOC | 1.6 lb/hr | 0.5 tons/yr |
|-----|-----------|-------------|
- (Condition #67 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
45. Emissions from the operation of the phenol storage tank (VT-N4) shall not exceed the limits specified below:
- | | | |
|-----|------------|-------------|
| VOC | 12.3 lb/hr | 3.6 tons/yr |
|-----|------------|-------------|
- (Condition #68 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
46. Fugitive emissions from equipment leaks from the operation of the VT-N2, VT-N3 and VT-N4 shall not exceed the limits specified below:
- | | | |
|-----|-----------|-------------|
| VOC | 0.1 lb/hr | 0.4 tons/yr |
|-----|-----------|-------------|
- Compliance with the requirements of this condition shall be determined as specified in Conditions #7 and #71.m.
(Condition #69 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
47. Emissions from the operation of the Area 6 cooling towers shall not exceed the limits specified below:
- | | | |
|--------------------|-----------|-------------|
| Particulate Matter | 0.2 lb/hr | 0.8 tons/yr |
|--------------------|-----------|-------------|

Particulate Matter (PM-10)	0.03 lb/hr	0.12 tons/yr
Particulate Matter (PM-2.5)	0.03 lb/hr	0.12 tons/yr

(Condition #70 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

40 CFR 60 Subpart NNN/RRR Requirements

48. The following Area 6 affected facilities subject to 40 CFR 60 Subparts NNN or RRR shall be operated in compliance with the requirements of 40 CFR 60.662(c)/60.702(c) as specified below:

The following equipment shall be operated such that their vent streams shall each maintain a Total Resource Effectiveness (TRE; as defined in 40 CFR 60 Subparts NNN/RRR) value of greater than 1.0 without the use of a VOC control device at all times: APT-66B and APT-67B (as exhausted through their common recovery device, product recovery condenser C-225), CL-10, CL-25, CL-36, CL-46, CL-64 and CL-65.

(40 CFR 60 Subparts NNN and RRR, Condition #54.c of the 2/19/2015 NSR Permit, and 9VAC5-80-110)

49. The permittee shall perform an initial performance test and determine an initial process vent stream TRE (as defined in 40 CFR 60 Subparts NNN/RRR) value for APT-66B and APT-67B (as exhausted through their common recovery device, product recovery condenser C-225), CL-10, CL-25 and CL-46. Unless a 40 CFR 60.8 waiver is obtained, the permittee shall perform an initial performance test and determine the net heating value for CL-80. The Net Heating Value, the Emission Rate of VOC, and the TRE (as defined in 40 CFR 60 Subparts NNN/RRR) of the process vent streams for the above units, as applicable, shall be determined and calculated as defined in 40 CFR 60 Subparts NNN or RRR, as appropriate.
 (40 CFR 60 Subparts NNN and RRR, Condition #72 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
50. The permittee shall recalculate the TRE (as defined in 40 CFR 60 Subparts NNN/RRR) index value for APT-66B and APT-67B (as exhausted through their common recovery device, product recovery condenser C-225), CL-10, CL-25, CL-36, CL-46, CL-64 and CL-65 whenever process changes are made. The TRE (as defined in 40 CFR 60 Subparts NNN/RRR) index value shall be recalculated based on test data or on best engineering estimates of the effects of the change on the recovery system.
 (40 CFR 60 Subparts NNN and RRR, Condition #73 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
51. Where the TRE (as defined in 40 CFR 60 Subparts NNN/RRR) value, calculated in accordance with Conditions #49 and #50, is less than or equal to 1.0, the source shall notify DEQ within a week of that determination and shall conduct a performance test consistent with the requirements of 40 CFR Part 60.664(g)(1) or 40 CFR Part 60.704(f)(1), as appropriate. This performance test shall be conducted as soon as possible but in no case later than 180 days after the process change prompting the recalculation.
 (40 CFR 60 Subparts NNN and RRR, Condition #74 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
52. Where the TRE (as defined in 40 CFR 60 Subparts NNN/RRR) value, calculated in accordance with Conditions #49 and #50, is less than or equal to 8.0 but greater than 1.0, the source shall conduct a performance test consistent with 40 CFR 60.664(g)(2) or 40 CFR Part 60.704(f)(2). This performance test must be conducted as soon as possible but in no case later than 180 days after the process change prompting the recalculation. All performance tests conducted in accordance with this condition shall be conducted within 180 days of the process change.
 (40 CFR 60 Subparts NNN and RRR, Condition #75 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

53. The permittee shall operate APT-66B and APT-67B (as exhausted through their common recovery device, product recovery condenser C-225), A6-Hydro (APT-2, 4, 6, 81, 82), CL-2, CL-18, CL-9, CL-10, CL-17, CL-25, CL-26, CL-36, CL-46, CL-80, CL-64 and CL-65 in compliance with 40 CFR 60 Subparts NNN or RRR, as appropriate. In accordance with 40 CFR 63.110(d), for A6-Hydro (APT-2, 4, 6, 81, 82), CL-2, CL-18, CL-9, CL-17, CL-26 and CL-80, compliance with the requirements of Conditions #54-60 shall also be sufficient to demonstrate compliance with the requirements of this condition.
(40 CFR 63.110(d), Condition #76 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

HON Process Requirements

54. The following Area 6 affected facilities subject to 40 CFR 63 Subpart G shall be operated in compliance with the requirements of either 40 CFR 63.113(a)(1), 40 CFR 63.113(a)(2) or 40 CFR 63.113(e) as specified below:
- a. VOC emissions from the A6-Hydro (APT-2, 4, 6, 81, 82) reactor system (excluding cryogenics carbon bed depressurization cycles) shall be controlled by reducing TOC (total organic compounds less methane and ethane) emissions by 98 weight percent, or to a TOC concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen, whichever is less stringent. Compliance with this requirement shall be achieved by the venting the VOC emissions to the >44 MW Kellogg process heater as specified in Condition #1 of this permit and by introducing the VOC emissions to the process heater with the primary fuel.
 - b. VOC emissions from the following equipment shall be controlled by the Area 6 flares as specified in Conditions #2-3 of this permit: A6-Hydro (APT-2, 4, 6, 81, 82) during carbon bed depressurization and cryogenics malfunction episodes, CT-48, CT-53, CT-55, CL-2 and CL-18 (as exhausted through their common recovery device VE-02ZC), CL-9, CL-17, CL-26, CL-65new and CL-80.
 - c. The following equipment shall be operated such that their vent streams shall each maintain a TRE (as defined in 40 CFR 63 Subpart G) value of greater than 4.0 without the use of a VOC control device at all times: APT-83, APT-66B and APT-67B (as exhausted through their common recovery device, product recovery condenser C-225), CL-10, CL-25, CL-36, CL-46, CL-64, CL-65, HT-09, HT-38, HT-45, VA-15, VA-17, VT-119, VT-021, VT-210, VT-250 and VT-456.
- (40 CFR 63.113(a)(1-2), 40 CFR 63.113(b), 40 CFR 63.113(e), Condition #54.a-b of the 2/19/2015 NSR Permit and 9VAC5-80-110)
55. VOC emissions from the CL-80 Feed Tank (VT-007) shall be controlled by a closed-vent system routed to a water-cooled product recovery condenser (C-437). The removal efficiency of the condenser shall be at least 95%.
(40 CFR 63.170, 40 CFR 63.172(b), Condition #33 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
56. The permittee shall perform an initial TRE (as defined in 40 CFR 63 Subpart G) determination for APT-83, APT-66B and APT-67B (as exhausted through their common recovery device, product recovery condenser C-225), CL-10, CL-25, CL-36, CL-46, CL-64, CL-65, HT-09, HT-38, HT-45, VA-15, VA-17, VT-119, VT-021, VT-210, VT-250 and VT-456. The Net Heating Value, the Emission Rate of Hazardous Air Pollutants, and the TRE (as defined in 40 CFR 63 Subpart G) of the process vent streams for the above units shall be determined and calculated as defined in 40 CFR 63 Subpart G.
(40 CFR 63.115(d) and 9VAC5-80-110)

57. The permittee shall recalculate the TRE (as defined in 40 CFR 63 Subpart G) index value for APT-83, APT-66B and APT-67B (as exhausted through their common recovery device, product recovery condenser C-225), CL-10, CL-25, CL-36, CL-46, CL-64, CL-65, HT-09, HT-38, HT-45, VA-15, VA-17, VT-119, VT-021, VT-210, VT-250 and VT-456 whenever process changes are made. The TRE (as defined in 40 CFR 63 Subpart G) index value shall be recalculated based on test data or on best engineering estimates of the effects of the change on the recovery system.
(40 CFR 63.115(e) and 9VAC5-80-110)
58. Where the TRE (as defined in 40 CFR 63 Subpart G) value, calculated in accordance with Condition #57 of this permit is less than or equal to 1.0, or less than or equal to 4.0 but greater than 1.0, the permittee shall comply with the appropriate provisions in 40 CFR 63.113.
(40 CFR 63.115(e)(2) and 9VAC5-80-110)
59. The permittee shall develop and implement a written start-up, shutdown and malfunction (SSM) plan as specified in 40 CFR 63.6(e)(3). This plan shall describe, in detail, procedures for operating and maintaining Area 6 during periods of SSM and a program for corrective action for malfunctioning process and air pollution control equipment used to comply with 40 CFR 63 Subparts G and H.
(40 CFR 63.6(e)(3) and 9VAC5-80-110)
60. Except where this permit is more restrictive than the applicable requirement, the permittee shall operate Area 6 in compliance with all requirements of 40 CFR 63 Subparts A, F, G and H.
(40 CFR 63 Subparts A, F, G, H and 9VAC5-80-110)

Flare Requirements

61. The permittee shall design, maintain, and operate each non-assisted flare in accordance with the following requirements:
 - a. Each non-assisted flare shall be designed for and operated with no visible emissions, except for periods not to exceed a total of five (5) minutes during any two (2) consecutive hours. Test Method 22 in Appendix A of 40 CFR 60 shall be used to determine compliance with this visible emission requirement.
(40 CFR 63.116(a), 40 CFR 63.11(b)(4) and 9VAC5-80-110)
 - b. Each non-assisted flare shall be equipped to maintain the pilot flame during all periods of operation.
 - c. Each non-assisted flare shall operate at all times with either:
 - i. A minimum net heating value of the gas to be combusted of 7.45 MJ/scm (200 Btu per standard cubic foot) of the gas, or
 - ii. Hydrogen content of 8.0 percent (by volume) or greater.

The net heating value and/or hydrogen content of the inlet to FLS-61 shall be continuously calculated through a combination of flow rates and stream composition, and recorded as 3-hour block averages.

The net heating value and/or hydrogen content of the inlet to FLS-62 shall be determined annually. The net heating value shall be calculated using the equation in 40 CFR 60.18(f)(3).
(Condition #80 of the 2/19/2015 NSR Permit, Condition #100 of the 12/5/2019 NSR Permit, and 9VAC5-80-110)

- d. When meeting the requirements of Condition #61.c.i., each Area 6 non-assisted flare (FLS-61, FLS-62) shall operate with an exit velocity less than the velocity calculated from the following equation:

$$\text{Log}_{10}(V_{\max}) = (H_T + 28.8)/31.7$$

where: V_{\max} = the maximum permitted velocity < 122 m/sec (400 ft/sec)
 H_T = the net heating value (Condition #61.c)

When meeting the requirements of Condition #61.c.ii., each Area 6 non-assisted flare (FLS-61, FLS-62) shall operate with an exit velocity less than the velocity, V_{\max} , as determined by the following equation:

$$V_{\max} = (X_{H_2} - K_1) * K_2$$

where: V_{\max} = the maximum permitted velocity < 37.2 m/sec (122 ft/sec)
 K_1 = constant, 6.0 volume-percent hydrogen
 K_2 = constant, 3.9 (m/sec)/volume-percent hydrogen
 X_{H_2} = the volume percent of hydrogen, on a wet basis, as calculated by using ASTM Method D1946-77 (or the most recent version) or as calculated using direct instrumental measurement or mass balance data of individual streams

The actual velocity of flare FLS-61 shall be calculated continuously and recorded as a 3-hour block average. The actual velocity of flare FLS-62 shall be determined by dividing the volumetric flowrate (in units of standard temperature and pressure), as determined by Reference Methods 2, 2A, 2C, or 2D as appropriate; by the unobstructed (free) cross-sectional area of the flare tip.

(40 CFR 63.116(a), 40 CFR 63.11(b)(7), Condition #79 of the 2/19/2015 NSR Permit, Conditions #100 and #101 of the 12/5/2019 NSR Permit, and 9VAC5-80-110)

62. The pilot flame on each non-assisted flare shall be equipped with a heat sensing device to indicate the continuous presence of a flame. Additionally, each pilot flame shall be equipped with an alarm such that extinguishing of the flame can be recognized and corrected. During all periods of operation, to include startup and shutdown, the presence of the pilot flame shall be monitored and recorded. Data from the heat sensing device monitor shall be recorded as fifteen minute readings. All continuous monitoring devices shall be maintained and calibrated in accordance with the manufacturer's specifications. The heat sensing device shall be inspected annually and the results of the inspection recorded. If a monitor fails its inspection check, the data shall be invalid from the time of the failed inspection until corrective actions are taken and a successful re-inspection is completed.
(40 CFR 63.114(a)(2), Condition #79 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

HON LDAR Requirements

63. The permittee shall operate Area 6 in compliance with the Leak Detection and Repair Requirements of 40 CFR 63 Subpart H. The provisions of this condition apply to pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control

vessels, bottoms receivers, instrumentation systems, and control devices or closed vent systems required by 40 CFR Subpart H that are intended to operate in organic hazardous air pollutant service 300 hours or more during a calendar year.

- a. 63.162 – Standards: General
- b. 63.163 – Standards: Pumps in light liquid service
- c. 63.164 – Standards: Compressors
- d. 63.165 – Standards: Pressure relief devices in gas/vapor service
- e. 63.166 – Standards: Sampling Connection systems
- f. 63.167 – Standards: Open-ended valves or lines
- g. 63.168 – Standards: Valves in gas/vapor service and in light liquid service
- h. 63.169 – Standards: Pumps, valves, connectors, and agitators in heavy liquid service; instrumentation systems; and pressure relief devices in liquid service
- i. 63.171 – Standards: Delay of Repair
- j. 63.173 – Standards: Agitators in gas/vapor service and in light liquid service
- k. 63.174 – Standards: Connectors in gas/vapor service and in light liquid service
- l. 63.180 – Test methods and procedures

(40 CFR 63 Subpart H and 9VAC5-80-110)

MON Process Requirements

- 64. The permittee shall operate any applicable Area 6 equipment in compliance with the requirements of 40 CFR 63 Subparts A and FFFF.
(40 CFR 63 Subparts A and FFFF and 9VAC5-80-110)

Monitoring

- 65. Initial performance tests for VOC from VT-N2, VT-N3 and VT-N4 shall be conducted using an appropriate EPA Reference Method, as approved by the Piedmont Regional Office, to determine compliance with the emission limits of Conditions #43-45. The tests shall be performed, and demonstrate compliance, within 60 days after achieving the maximum production rate but in no event later than 180 days after start-up of each unit. Each test shall be conducted when the unit to be tested is being loaded at a minimum of 80% of its maximum rated capacity. Tests shall be conducted and reported and data reduced as set forth in 9VAC5-50-30. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. Two copies of the test results shall be submitted to the Piedmont Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit.
(Condition #71 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
- 66. The permittee shall conduct annual inspections on the storage tanks and level control systems subject to Condition #17 to insure that the storage tanks and level control systems are maintained and operated in good working order. The permittee shall expeditiously take corrective action as necessary to address any malfunctioning equipment discovered in any inspection.
(9VAC5-80-110)

67. The permittee shall install a flow indicator that provides a record of vent stream flow from CL-65new to the flare (FLS-62) at least once every hour. The flow indicator shall be installed in the vent stream from each affected facility at a point closest to the flare and before being joined with any other vent stream.
(Condition #96 of the 12/5/2019 NSR Permit and 9VAC5-80-110)
68. The permittee shall install, calibrate and maintain a monitoring device which continuously measures and permanently records the product side outlet temperature for the condensers of each of the following emission units: CL-26, CL-36, CL-64, CL-65, VT-007, APT-66B/67B and VT-210, VT-N2, VT-N3 and VT-N4. During all periods of operation, the devices shall continuously monitor and record the product side outlet temperature for the condensers listed above. Data from the continuous temperature monitors for CL-26 and CL-65 shall be recorded as fifteen minute readings and reduced to 3-hour rolling averages. A valid 3-hour average shall consist of no less than 90% valid readings. Data from the continuous temperature monitors for CL-36, CL-64, VT-007, APT-66B/67B and VT-210 shall be recorded as fifteen minute readings and reduced to daily rolling averages. A valid daily average shall consist of no less than 90% valid readings. The continuous temperature monitors shall be calibrated annually (as a minimum).
(40 CFR 63.172(e), Condition #E.19 of the 3/26/1997 RACT Agreement, Condition #78 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
69. The permittee shall conduct annual inspections of the VT-007 closed-vent system and product recovery condenser C-437 as specified in 40 CFR 63.180(b). Any leaks detected shall be repaired as specified in 40 CFR 63.172(h).
(40 CFR 63.172(f) and 9VAC5-80-110)
70. The permittee shall install, calibrate, maintain and operate flow indicators that, at least once every 15 minutes, determine whether vent stream flow in any line that bypasses the Kellogg process heater, either non-assisted flare or condenser C-437 is present. The flow indicators shall be installed at the entrance to any bypass line that could divert the vent stream away from the control devices to the atmosphere. Equipment such as low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and pressure relief valves needed for safety purposes are not subject to this condition.
(40 CFR 63.114(d)(1), Condition #E.22 of the 3/26/1997 RACT Agreement, Condition #82 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Recordkeeping

71. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to:
 - a. Flare records
 - i. The existence of the pilot flame for each flare, recorded hourly;
 - ii. The total hours, estimated production and length of time APT-1, the naxol batch reactor is operational and venting to the flare.
 - iii. The yearly throughput of natural gas to Area 6 non-assisted flares, calculated monthly as the sum of each consecutive 12-month period.
 - iv. The number of times and the length of each occurrence were visible emissions are observed from either flare.

- b. The annual throughput, in the specified units, for the equipment identified in Conditions #18-31 of this permit, calculated monthly as the sum each consecutive 12-month period.
- c. Records necessary to demonstrate compliance with the emissions limitations in Conditions #32-47 of this permit.
- d. The maximum hourly throughput, in pounds per hour, for distillation columns 2, 9, 17, 18, 26, 36, 80, 64, 65, and 65new.
- e. 40 CFR 60 Subpart NNN/RRR records
 - i. The existence of the pilot flame for each flare, recorded hourly;
 - 1. Any changes in production capacity, feedstock type, or catalyst type, or any replacement, removal or addition of recovery equipment or a distillation unit;
 - 2. Any calculation or recalculation of the TRE (as defined in 40 CFR 60 Subpart NNN/RRR) index value performed pursuant to 40 CFR 60.664(f) or 40 CFR 60.664(g); and
 - 3. The results of the initial performance test and any subsequent performance tests performed pursuant to the methods and procedures required by 40 CFR 60.664(e).
 - ii. For APT-66B and APT-67B (as exhausted through their common recovery device, product recovery condenser C-225):
 - 1. Any changes in production capacity, feedstock type, or catalyst type, or any replacement, removal or addition of recovery equipment or reactors;
 - 2. Any recalculation of the TRE (as defined in 40 CFR 60 Subpart NNN/RRR) index value performed pursuant to 40 CFR 60.704(f);
 - 3. The results of the initial performance test and any subsequent performance tests performed pursuant to the methods and procedures required by 40 CFR 60.704(d); and
 - 4. The initial test for determining the TRE (as defined in 40 CFR 60 Subpart NNN/RRR) index and the results of the initial TRE (as defined in 40 CFR 60 Subpart NNN/RRR) index calculation.
- f. HON process records
 - i. For APT-83, APT-66B and APT-67B (as exhausted through their common recovery device, product recovery condenser C-225), CL-10, CL-25, CL-36, CL-46, CL-64, CL-65, HT-09, HT-38, HT-45, VA-15, VA-17, VT-119, VT-021, VT-210, VT-250 and VT-456:
 - 1. All measurements, engineering assessments, and calculations performed to determine the TRE (as defined in 40 CFR 63 Subpart G) index value of each vent stream. Documentation of engineering assessments shall include all data, assumptions, and procedures used for the engineering assessments;
 - 2. Any process changes including changes in production capacity, feedstock type, or catalyst type, or any replacement, removal or addition of recovery equipment or reactors; and
 - 3. Any recalculation of the TRE (as defined in 40 CFR 63 Subpart G) index value performed pursuant to 40 CFR 63.115(e).
(40 CFR 63.117(b) and 63.118(c))

- ii. For the A6-Hydro (APT-2, 4, 6, 81, 82) reactor system (excluding cryogenics carbon bed depressurization cycles):
 - 1. Any changes in the location at which the vent stream is introduced into the Kellogg process heater; and
 - 2. Records of the monitoring required by Condition #70 for the Kellogg process heater. (40 CFR 63.117(a)(4)(iii) and 63.118(a)(3-4))
- iii. For A6-Hydro (APT-2, 4, 6, 81, 82) during carbon bed depressurization and cryogenics malfunction episodes, CT-48, CT-53, CT-55, CL-2 and CL-18 (as exhausted through their common recovery device VE-02ZC), CL-9, CL-17, CL-26, CL-65new and CL-80:
 - 1. The total hours and estimated emissions from Area-6 Hydro when the cryogenics unit is shutdown;
 - 2. Records of the design of each flare;
 - 3. Records of all visible emission observations, heat content or hydrogen content analyses (as applicable), flow rate calculations or measurements, exit velocity determinations and any other information necessary to determine compliance with Condition #61; and
 - 4. Records of the pilot flame monitoring data required by Condition #62 for each flare; including hourly records of whether the monitor was continuously operating and whether the pilot flame was continuously present during each hour and records of the times and durations of all periods when all pilot flames are absent or the monitors are not operating.
 - 5. A schematic diagram of the affected vent streams, collections systems, fuels systems, flares and any bypass systems.
 - 6. Records of the monitoring required by Condition #70 for each flare. (40 CFR 63.117(a)(5), 63.118(a)(1-4), and Condition #106 of the 12/5/19 NSR Permit)
- iv. For the product recovery condensers for CL-36, CL-64, APT-66B/67B, VT-210, VT-N2, VT-N3, VT-N4 and VT-007, the daily average outlet temperature for each product recovery condenser. (Condition #68 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
- v. For the product recovery condensers for CL-26 and CL-65:
 - 1. The results of the annual continuous temperature monitoring device calibrations for each condenser.
 - 2. The 15 min readings and 3-hour rolling averages for the continuous temperature monitoring device for each condenser.
 - 3. All 3-hour periods of operation, calculated on a rolling average, in which the average outlet product side temperature is more than 5 degrees Fahrenheit above the maximum average product side temperature that demonstrated compliance during the most recent performance test.
 - 4. An explanation for each temperature excursion identified in Condition #71.f.v.3. (Conditions #E.18 and #E.19 of the 3/26/1997 RACT Agreement and Condition #68 of the 2/19/2015 NSR Permit)
- vi. For each Group 2 storage vessel (VT-176, VT-188, VT-29, VT-462, VT-515), records showing the dimensions of the storage vessel and an analysis showing the capacity of the storage vessel. These records shall be kept as long as the storage vessels retain Group 2 status and are in operation. (40 CFR 63.123(a))

- vii. Record and update annually the following information for each Group 2 Loading Rack (Nadone loading, Naxol loading and Naxol loading with methanol):
1. An analysis demonstrating the design and actual annual throughput of the transfer rack;
 2. An analysis documenting the weight-percent organic HAP in the liquid loaded. Examples of acceptable documentation include but are not limited to analyses of the material and engineering calculations; and
 3. An analysis documenting the annual rack weighted average HAP partial pressure of the transfer rack.
- (40 CFR 63.130(f))

g. HON LDAR records

- i. A list of the identification numbers for equipment subject to 40 CFR 63 Subpart H.
(40 CFR 63.181(b)(1)(i))
- ii. A schedule for monitoring connectors subject to the provisions of 40 CFR 63.174(a) of this subpart and valves subject to the provisions of 40 CFR 63.168(d).
(40 CFR 63.181(b)(1)(ii))
- iii. A list of identification numbers for compressors that the owner or operator elects to designate as operating with an instrument reading of less than 500 parts per million above background, under the provisions of 40 CFR 63.164(i).
(40 CFR 63.181(b)(2)(ii))
- iv. Identification of surge control vessels and bottoms receivers equipped with a closed-vent system and control device in accordance with 40 CFR 63 Subpart H.
(40 CFR 63.181(b)(2)(iii))
- v. A list of identification numbers for pressure relief devices subject to the provisions in 40 CFR 63.165(a).
(40 CFR 63.181(b)(3)(i))
- vi. Identification of instrumentation systems subject to the provisions of this subpart. Individual components in an instrumentation system need not be identified.
(40 CFR 63.181(b)(4))
- vii. For any leaks detected as specified in Condition #63, a weatherproof and readily visible identification, marked with the equipment identification number, shall be attached to the leaking equipment.
(40 CFR 63.181(b)(10))
- viii. For visual inspections of equipment subject to the provisions of this subpart (e.g., 40 CFR 63.163(b)(3), 40 CFR 63.164(e)(4)(i)), the owner or operator shall document that the inspection was conducted and the date of the inspection.
(40 CFR 63.181(c))
- ix. For each leak detected as specified in Condition #63, records required by 40 CFR 63.181(d), including:

1. The instrument and the equipment identification number and the operator name, initials, or identification number;
 2. The date the leak was detected and the date of first attempt to repair the leak;
 3. The date of successful repair of the leak;
 4. Maximum instrument reading measured by Method 21 of 40 CFR part 60 Appendix A after it is successfully repaired or determined to be nonrepairable;
 5. "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak;
 6. Dates of process unit shutdowns that occur while the equipment is unrepaired.
(40 CFR 63.181(d))
- x. The dates and results of each compliance test required for compressors subject to the provisions in 40 CFR 63.164(i) and the dates and results of the monitoring following a pressure release for each pressure relief device subject to the provisions in 40 CFR 63.165(a-b). The results shall include the background level measured during each compliance test and the maximum instrument reading measured at each piece of equipment during each compliance test.
(40 CFR 63.181(f))
- xi. For the VT-007 closed-vent system and condenser:
1. Detailed schematics, design specifications of the control device, and piping and instrumentation diagrams;
 2. The dates and descriptions of any changes in the design specifications;
 3. A description of the parameter or parameters monitored, as required in 40 CFR 63.172(e), to ensure that control devices are operated and maintained in conformance with their design and an explanation of why that parameter (or parameters) was selected for the monitoring;
 4. Dates and durations when the closed-vent systems and condenser are not operated as designed as indicated by the monitored parameters;
 5. Dates and durations during which the monitoring system or monitoring device is inoperative;
 6. Dates and durations of start-ups and shutdowns of the condenser;
 7. Records of the annual inspections required by Condition #69 of this permit and 40 CFR 63.172(f); for each inspection during which no leaks were detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected; for each inspection during which leaks were detected, the information specified in 40 CFR 63.181(d) shall be recorded; and
 8. A schematic diagram of the affected vent streams, collections systems, fuels systems, flares and any bypass systems.
(40 CFR 63.181(g))
- xii. For each piece of equipment in heavy liquid service, the permittee shall retain information, data, and analyses used to determine that the piece of equipment is in heavy liquid service.
(40 CFR 63.181(i)(1))
- xiii. Identification, either by list, location (area or group) of equipment in organic HAP service less than 300 hours per year.
(40 CFR 63.181(j))

- h. Leak detection and repair records as necessary to demonstrate compliance with Condition #15.
- i. Certification of submerged fill pipe (or bottom filling design) for each storage tank subject to Condition #16 and records of the inspections results and corrective actions required by the Condition #66.
- j. Records of the monitoring required by Condition #70 for the condenser C-437.
- k. For VT-N2 and VT-N3, records showing the dimension, the volatile organic liquid (VOL) stored, the period of storage, the maximum true vapor pressure of that VOL during the respective storage period and an analysis showing the capacity for storage vessel.
- l. Records demonstrating compliance with the Condition #7 LDAR requirements for VT-N2, VT-N3 and VT-N4.
- m. Records demonstrating compliance with the emission limits of Condition #46, including but not limited to the number of components, the type and service for each component and estimated component emission factors.
- n. Annual average cooling water total dissolved solids records and design cooling water liquid drift records for the Area 6 modular cooling towers.
- o. The shutdown date for cyclohexanol distillation column CL-63.
- p. For VT-210, records demonstrating that tank has been designed to operate such that no flashing of organic liquids occurs. Operation of VT-210 with a submerged fill system and a level control system shall be considered sufficient to meet this requirement provided that the permittee maintains records demonstrating that these measures are sufficient to prevent flashing.
- q. Maintenance, operations, inspections, and training
 - i. Scheduled and unscheduled maintenance records for all process equipment and air pollution control equipment.
 - ii. Inventory of spare parts to minimize duration of air pollution control equipment breakdowns.
 - iii. Written operating procedures for all process equipment and air pollution control equipment.
 - iv. Operator training records.

These records shall be available for inspection by the DEQ and shall be current for the most recent five (5) years.
(Conditions #85 of the 2/19/2015 NSR Permit, Condition #106 of the 12/5/2019 NSR Permit, and 9VAC5-80-110)

Reporting

72. The permittee shall furnish written notification to the Piedmont Regional Office of:
- a. The actual date of modification for APT-66B, APT-67B, A6-Hydro (APT-2, 4, 6, 81, 82), CL-2, CL-18, CL-9, CL-10, CL-17, CL-25, CL-26, CL-36, CL-46, CL-64 and CL-65 within 10 days after such date.
 - b. The actual date construction is commenced for VT-N2, VT-N3 and VT-N4 (each) within 10 days after such date.

- c. The actual date of start-up for VT-N2, VT-N3 and VT-N4 (each) within 15 days after such date.
- d. The anticipated date of performance tests for VT-N2, VT-N3 and VT-N4 (each) postmarked at least thirty (30) days prior to such date.
- e. The actual date of start-up for the modified APT-66B, APT-67B, A6-Hydro (APT-2, 4, 6, 81, 82), CL-2, CL-18, CL-9, CL-10, CL-17, CL-25, CL-26, CL-36, CL-46, CL-64 and CL-65 within 15 days after such date. The notification for each unit shall include the specific provision of either 40 CFR 60.662 or 40 CFR 60.702 with which the permittee will comply. For A6-Hydro (APT-2, 4, 6, 81, 82), the notification shall also include a description of the location at which the vent stream is introduced into the Kellogg process heater.
- f. For APT-66B and APT-67B (as exhausted through their common recovery device, product recovery condenser C-225), any recalculation of the TRE (as defined in 40 CFR 60 Subpart NNN/RRR) index value as recorded under 40 CFR 60.705(g) reported semiannually in accordance 40 CFR 60.705(l).
- g. For CL-10, CL-25, CL-36, CL-46, CL-64 and CL-65, any recalculation of the TRE (as defined in 40 CFR 60 Subpart NNN/RRR) index value as recorded under 40 CFR 60.665(h) reported semiannually in accordance 40 CFR 60.665(l).

Copies of written notifications required by subsections (e-g) of this condition are to be sent to:

Chief, Air Section
Enforcement & Compliance Assurance Division
Air, RCRA and Toxics Branch
US EPA Region 3
1650 Arch Street – 3ED21
Philadelphia, PA 19103

(Condition #84 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

73. The permittee shall submit the following reports to demonstrate compliance with this permit. The content of and format of such reports shall be arranged with the Piedmont Regional Office. These reports shall include, but are not limited to:
- a. Periodic Reports containing the information specified in 40 CFR 63.117-118 for process vents, the information specified in 40 CFR 63.122 for storage vessels, the information specified in 40 CFR 63.129-130 for transfer operations and the information specified in 40 CFR 63.182(d) for equipment leaks and repair. These reports shall be submitted semiannually, no later than 60 days after the end of each 6-month period. This information includes but is not limited to:
 - i. For APT-83, APT-66B and APT-67B (as exhausted through their common recovery device, product recovery condenser C-225), CL-10, CL-25, CL-36, CL-46, CL-64, CL-65, HT-09, HT-38, HT-45, VA-15, VA-17, VT-119, VT-021, VT-210, VT-250 and VT-456, reports of any process changes;
(40 CFR 63.152(c)(4)(i))
 - ii. Where the TRE (as defined in 40 CFR 63 Subpart G) value, calculated in accordance with Condition #57 of this permit is less than or equal to 1.0, or less than or equal to 4.0 but greater than

1.0, the owner or operator shall notify DEQ within a week of that determination and submit a report within 180 days of the process change as specified in 40 CFR 63.118(g-h);
(40 CFR 63.115(e)(2) and 9VAC5-80-110)

- iii. Reports of the times and durations of all periods recorded under Conditions #71.j, #71.f.ii.2 and #71.f.iii.6 when a gas stream is diverted to the atmosphere through a bypass;
(40 CFR 63.118(f)(3))
- iv. Reports of the times and durations of all periods recorded under Condition #71.f.iii.4 in which all pilot flames of a flare were absent;
(40 CFR 63.118(f)(5))
- v. The number of valves for which leaks were detected, the percent leakers, and the total number of valves monitored;
(40 CFR 63.182(d)(2)(i))
- vi. The number of valves for which leaks were not repaired, identifying the number of those that are determined nonrepairable;
(40 CFR 63.182(d)(2)(ii))
- vii. The number of pumps for which leaks were detected, the percent leakers, and the total number of pumps monitored;
(40 CFR 63.182(d)(2)(iii))
- viii. The number of pumps for which leaks were not repaired;
(40 CFR 63.182(d)(2)(iv))
- ix. The number of compressors for which leaks were detected;
(40 CFR 63.182(d)(2)(v))
- x. The number of compressors for which leaks were not repaired;
(40 CFR 63.182(d)(2)(vi))
- xi. The number of agitators for which leaks were detected;
(40 CFR 63.182(d)(2)(vii))
- xii. The number of agitators for which leaks were not repaired;
(40 CFR 63.182(d)(2)(viii))
- xiii. The number of connectors for which leaks were detected, the percent of connectors leaking, and the total number of connectors monitored;
(40 CFR 63.182(d)(2)(ix))
- xiv. The number of connectors for which leaks were not repaired, identifying the number of those that are determined nonrepairable;
(40 CFR 63.182(d)(2)(xi))
- xv. The facts that explain any delay of repairs and, where appropriate, why a process unit shutdown was technically infeasible; and
(40 CFR 63.182(d)(2)(xiii))

- xvi. The results of all monitoring to show compliance with 40 CFR 63.164(i), 40 CFR 63.165(a) and 40 CFR 63.172(f) conducted within the semiannual reporting period.
(40 CFR 63.182(d)(2)(xiv))
- b. Start-up, Shutdown and Malfunction Reports containing the information specified in 40 CFR 63.10(d)(5)(i). These reports shall be submitted on the same schedule as the Periodic Reports referenced in paragraph (a) of this condition.

Copies of written notifications required by subsections (a-b) of this condition are to be sent to:

Chief, Air Section
Enforcement & Compliance Assurance Division
Air, RCRA and Toxics Branch
US EPA Region 3
1650 Arch Street – 3ED21
Philadelphia, PA 19103

(40 CFR 63 Subparts G and H and 9VAC5-80-110)

AREA 9 - HYDROXYLAMINE SULFATE PRODUCTION

Limitations

Control Equipment Requirements

74. The permittee shall operate two (one for each tower) selective catalytic reduction systems (SCR) for the control of nitrogen oxide (NOx) emissions from the ammonium nitrite and hydroxylamine diammonium sulfonate towers of either "A" train (TW-2 and TW-62), "B" train (TW-8 and TW-9) or "C" train (TW-17 and TW-18). Each SCR shall achieve a NOx removal efficiency of at least 95%.
(Condition #86 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
75. By December 31, 2014, the permittee shall complete construction and commence operation of two (one for each tower) selective catalytic reduction systems (SCR) for the control of nitrogen oxide (NOx) emissions from the ammonium nitrite and hydroxylamine diammonium sulfonate towers of one of the trains ("A", "B" or "C") not controlled in accordance with Condition #74. By June 30, 2015, each SCR shall achieve a NOx removal efficiency of at least 95%.
(Condition #87 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
76. By December 31, 2016, the permittee shall complete construction and commence operation of two (one for each tower) selective catalytic reduction systems (SCR) for the control of nitrogen oxide (NOx) emissions from the ammonium nitrite and hydroxylamine diammonium sulfonate towers of the train ("A", "B" or "C") not controlled in accordance with Conditions #74-75. By June 30, 2017, each SCR shall achieve a NOx removal efficiency of at least 95%.
(Condition #88 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
77. By December 31, 2018, the permittee shall complete construction and commence operation of two selective catalytic reduction systems (SCR) for the control of nitrogen oxide (NOx) emissions from the ammonium nitrite and/or hydroxylamine diammonium sulfonate towers (one SCR for two of the four towers) of either

"D" train (TW-22 and TW-23) and/or "E" train (TW-32 and TW-33). By June 30, 2019, each SCR shall achieve a NOx removal efficiency of at least 95%.
(Condition #89 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

78. By the same date that the SCR required by Conditions #74-76 for the hydroxylamine diammonium sulfonate tower of "A" train (TW-62) commences operation, the permittee shall complete construction and commence operation of a packed bed scrubber for the control of sulfur dioxide emissions from TW-62. By the same date that the SCR system required by Conditions #74-76 for TW-62 is required to achieve a NOx removal efficiency of at least 95%, the packed bed scrubber shall achieve a sulfur dioxide removal efficiency of at least 90%.
(Condition #90 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
79. By the same date that the SCR required by Conditions #74-76 for the hydroxylamine diammonium sulfonate tower of "B" train (TW-9) commences operation, the permittee shall complete construction and commence operation of a packed bed scrubber for the control of sulfur dioxide emissions from TW-9. By the same date that the SCR system required by Conditions #74-76 for TW-9 is required to achieve a NOx removal efficiency of at least 95%, the packed bed scrubber shall achieve a sulfur dioxide removal efficiency of at least 90%.
(Condition #91 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
80. Particulate emissions from the hydroxylamine disulfonate tower of the "A" train (TW-62) shall be controlled by a Brinks Mist Eliminator. The reduction efficiency of the mist eliminator shall be at least 98%.
(Condition #92 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
81. Particulate emissions from the ammonium nitrite tower of the "B" train (TW-8) shall be controlled by a fixed throat Venturi scrubber. The reduction efficiency of the scrubber shall be at least 90% for particulate matter and 90% for PM-10 emissions. The liquid flow to the scrubber shall be maintained at all times.
(Condition #93 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
82. Particulate emissions from the hydroxylamine disulfonate tower of the "B" train (TW-9) shall be controlled by a Brinks Mist Eliminator. The reduction efficiency of the mist eliminator shall be at least 98%.
(Condition #94 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
83. Sulfur Dioxide emissions from the Hydroxylamine Disulfonate tower of the "C" train (TW-18) shall be controlled by a Packed Bed scrubber. The reduction efficiency of the scrubber shall be at least 90%. The liquid flow to the scrubber shall be maintained at all times.
(Condition #95 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
84. Nitrogen oxide emissions from the ammonium nitrite tower of the "D" train (TW-22) shall be controlled by Honeywell's NO Oxidizer Time Tank. The removal efficiency of the NO Oxidizer shall be at least 70%.
(Condition #96 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
85. Particulate emissions from the ammonium nitrite tower of "D" train (TW-22) shall be controlled by a fixed throat venturi scrubber. The reduction efficiency of the scrubber shall be at least 90% for particulate matter and 90% for PM-10 emissions. The liquid flow to the scrubber shall be maintained at all times.
(Condition #97 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

86. Nitrogen oxide emissions from the hydroxylamine diammonium sulfonate tower of the "D" train (TW-23) shall be controlled by a packed bed scrubber. The Nitrogen Oxide removal efficiency of the scrubber shall be, at a minimum, 50%. The liquid flow to the scrubber shall be maintained at all times.
(Condition #98 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
87. Nitrogen oxide emissions from the ammonium nitrite tower of the "E" train (TW-32) shall be controlled by Honeywell's NO Oxidizer Time Tank. The removal efficiency of the NO Oxidizer shall be at least 70%.
(Condition #99 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
88. Particulate emissions from the ammonium nitrite tower of the "E" train (TW-32) shall be controlled by a fixed throat Venturi scrubber. The removal efficiency of the scrubber shall be at least 90%.
(Condition #100 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
89. Nitrogen oxide emissions from the hydroxylamine diammonium sulfonate tower of the "E" train (TW-33) shall be controlled by a packed bed scrubber. The Nitrogen Oxide removal efficiency of the scrubber shall be, at a minimum, 50%. The liquid flow to the scrubber shall be maintained at all times.
(Condition #101 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
90. Particulates from the hydroxylamine diammonium sulfonate tower of the "E" train (TW-33) shall be controlled by a Brinks mist eliminator. The removal efficiency of the mist eliminator shall be at least 98%.
(Condition #102 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
91. Sulfur dioxide emissions from the hydroxylamine diammonium sulfonate tower of the "E" train (TW-33) shall be controlled by a packed bed scrubber. The Sulfur Dioxide removal efficiency of the scrubber shall be, at a minimum, 90%. The liquid flow to the scrubber shall be maintained at all times.
(Condition #103 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
92. Particulate emissions from the Area 9-New modular cooling towers shall be controlled by a limiting the total dissolved solids of the cooling water to 2,500 parts per million as an annual average (12-month rolling basis) and by the use of cooling towers designed to limit cooling tower liquid drift to 0.001% or less.
(Condition #104 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
93. Condition reserved.

Throughput Limits

94. The annual input of ammonia to Area 9 hydroxylamine monoammonium sulfate production shall not exceed 68,191,200 hydroxylamine sulfate units, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #105 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
95. The annual input of sulfur to Area 9 hydroxylamine monoammonium sulfate production shall not exceed 137,159.6 hydroxylamine diammonium sulfonate units, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #106 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
96. The annual input of ammonia to the ammonium nitrite towers and sulfur to hydroxylamine diammonium sulfonate towers shall not exceed the quantities of ammonium nitrite units and hydroxylamine diammonium sulfonate units specified below, calculated monthly as the sum of each previous consecutive 12-month period.

	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
A: TW-2	3653.8	3653.8 ¹	3653.8 ¹	5098.3	5098.3
B: TW-8	3832.1	3832.1 ¹	5098.3 ¹	5098.3	5098.3
C: TW-17	3143.0	5098.3 ¹	5098.3 ¹	5098.3	5098.3
D: TW-22	5098.3	5098.3	5098.3	5098.3	5523.2 ²
E: TW-32	5098.3	5098.3	5098.3	5098.3	5098.3 ²
A: TW-62	24017.3	24017.3 ¹	24017.3 ¹	33708.5	33708.5
B: TW-9	21910.5	21910.5 ¹	33708.5 ¹	33708.5	33708.5
C: TW-18	26966.8	33708.5 ¹	33708.5 ¹	33708.5	33708.5
D: TW-23	33708.5	33708.5	33708.5	33708.5	35815.3 ²
E: TW-33	33708.5	33708.5	33708.5	33708.5	33708.5 ²

¹Upon notification of the Piedmont Regional Office, the permittee may elect to swap the order in which SCR systems are installed and throughput limits increased for “A”, “B” and “C” trains.

²Upon notification of the Piedmont Regional Office, the permittee may elect to swap the towers on which SCR systems are installed and throughput limits increased between the “D” and “E” train ammonium nitrite and/or hydroxylamine diammonium sulfonate towers.

For the purposes of this permit, the following definitions shall apply

- Phase 1 is defined as period of time between June 28, 2011 and the date the SCR systems referenced in Condition #74 continuously achieved a NOx removal efficiency of at least 95%.
 - Phase 2 is defined as the period of time between the date the SCR systems referenced in Condition #74 continuously achieve a NOx removal efficiency of at least 95% and the date the SCR systems referenced in Condition #75 continuously achieve a NOx removal efficiency of at least 95%.
 - Phase 3 is defined as the period of time between the date the SCR systems referenced in Condition #75 continuously achieve a NOx removal efficiency of at least 95% and the date the SCR systems referenced in Condition #76 continuously achieve a NOx removal efficiency of at least 95%.
 - Phase 4 is defined as the period of time between the date the SCR systems referenced in Condition #76 continuously achieve a NOx removal efficiency of at least 95% and the date the SCR systems referenced in Condition #77 continuously achieve a NOx removal efficiency of at least 95%.
 - Phase 5 is defined as the period of time after date the SCR systems referenced in Condition #77 continuously achieve a NOx removal efficiency of at least 95%.
- (Condition #107 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Emission Limits

97. Nitrogen oxide emissions from the operation of the ammonium nitrite and hydroxylamine diammonium sulfonate towers shall not exceed the limits specified below. Annual emissions shall be calculated monthly as the sum of each previous consecutive 12-month period. Phases 1-5 shall be defined as specified in Condition #96.

Annual Emissions (tons/yr)	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
A: TW-2	1673.0	1673.0 ¹	1673.0 ¹	117.0	117.0
B: TW-8	1844.0	1844.0 ¹	123.0 ¹	123.0	123.0
C: TW-17	1257.0	102.0 ¹	102.0 ¹	102.0	102.0
D: TW-22	600.0	600.0	600.0	600.0	33.0 ²
E: TW-32	600.0	600.0	600.0	600.0	600.0 ²
A: TW-62	1244.0	1244.0 ¹	1244.0 ¹	87.0	87.0
B: TW-9	1092.0	1092.0 ¹	84.0 ¹	84.0	84.0
C: TW-18	1155.0	72.0 ¹	72.0 ¹	72.0	72.0
D: TW-23	600.0	600.0	600.0	600.0	32.0 ²
E: TW-33	600.0	600.0	600.0	600.0	600.0 ²
Hourly Emissions ³ (lb/hr)	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
A: TW-2	781.0	781.0 ¹	781.0 ¹	47.0	47.0
B: TW-8	853.0	853.0 ¹	51.0 ¹	51.0	51.0
C: TW-17	900.0	54.0 ¹	54.0 ¹	54.0	54.0
D: TW-22	240.0	240.0	240.0	240.0	13.0 ²
E: TW-32	240.0	240.0	240.0	240.0	240.0 ²
A: TW-62	500.0	500.0 ¹	500.0 ¹	27.0	27.0
B: TW-9	500.0	500.0 ¹	27.0 ¹	27.0	27.0
C: TW-18	500.0	27.0 ¹	27.0 ¹	27.0	27.0
D: TW-23	300.0	300.0	300.0	300.0	16.0 ²
E: TW-33	300.0	300.0	300.0	300.0	300.0 ²

¹Upon notification of the Piedmont Regional Office, the permittee may elect to swap the order in which SCR systems are installed and emission limits are revised for “A”, “B” and “C” trains.

²Upon notification of the Piedmont Regional Office, the permittee may elect to swap the towers on which SCR systems are installed and emission limits are revised between the “D” and “E” train ammonium nitrite and/or hydroxylamine diammonium sulfonate towers.

³Unless otherwise allowed by (1) any United States Environmental Protection Agency Consent Decree entered to resolve the Notices of Violation issued to the permittee on March 10, 2009 and August 21, 2010, (2) the provisions of 9VAC5-20-180 or (3) approved by the Piedmont Regional Office, the permittee shall demonstrate compliance with hourly emission limits of this condition at all times, including periods of startup, shutdown or malfunction.

(Condition #108 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

98. Particulate matter emissions from the operation of the ammonium nitrite and hydroxylamine diammonium sulfonate towers shall not exceed the limits specified below. Annual emissions shall be calculated monthly as the sum of each previous consecutive 12-month period. Phases 1-5 shall be defined as specified in Condition #96.

Annual Emissions (tons/yr)	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
A: TW-2	32.0	32.0 ¹	32.0 ¹	4.0	4.0
B: TW-8	12.0	12.0 ¹	4.0 ¹	4.0	4.0
C: TW-17	76.2	4.0 ¹	4.0 ¹	4.0	4.0
D: TW-22	12.0	12.0	12.0	12.0	4.0 ²
E: TW-32	4.0	4.0	4.0	4.0	4.0 ²
A: TW-62	4.5	4.5 ¹	4.5 ¹	6.3	6.3
B: TW-9	4.5	4.5 ¹	6.9 ¹	6.9	6.9
C: TW-18	4.5	5.6 ¹	5.6 ¹	5.6	5.6
D: TW-23	4.5	4.5	4.5	4.5	4.8 ²
E: TW-33	4.5	4.5	4.5	4.5	4.5 ²
Hourly Emissions (lb/hr)	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
A: TW-2	11.1	11.1 ¹	11.1 ¹	1.4	1.4
B: TW-8	3.8	3.8 ¹	1.4 ¹	1.4	1.4
C: TW-17	21.2	1.4 ¹	1.4 ¹	1.4	1.4
D: TW-22	3.8	3.8	3.8	3.8	1.4 ²
E: TW-32	1.4	1.4	1.4	1.4	1.4 ²
A: TW-62	1.2	1.2 ¹	1.2 ¹	1.7	1.7
B: TW-9	1.2	1.2 ¹	1.8 ¹	1.8	1.8
C: TW-18	1.2	1.7 ¹	1.7 ¹	1.7	1.7
D: TW-23	1.2	1.2	1.2	1.2	1.7 ²
E: TW-33	1.6	1.6	1.6	1.6	1.6 ²

¹Upon notification of the Piedmont Regional Office, the permittee may elect to swap the order in which SCR systems are installed and emission limits are revised for “A”, “B” and “C” trains.

²Upon notification of the Piedmont Regional Office, the permittee may elect to swap the towers on which SCR systems are installed and emission limits are revised between the “D” and “E” train ammonium nitrite and/or hydroxylamine diammonium sulfonate towers.

(Condition #109 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

99. Particulate matter (PM-10) emissions from the operation of the ammonium nitrite and hydroxylamine diammonium sulfonate towers shall not exceed the limits specified below. Annual emissions shall be calculated monthly as the sum of each previous consecutive 12-month period. Phases 1-5 shall be defined as specified in Condition #96.

Annual Emissions (tons/yr)	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
A: TW-2	11.5*	11.5 ^{1*}	11.5 ^{1*}	8.0	8.0
B: TW-8	6.0*	6.0 ^{1*}	8.0 ¹	8.0	8.0
C: TW-17	27.4*	8.0 ¹	8.0 ¹	8.0	8.0
D: TW-22	6.0*	6.0*	6.0*	6.0*	8.0 ²
E: TW-32	2.0*	2.0*	2.0*	2.0*	8.0 ²
A: TW-62	4.5*	4.5 ^{1*}	4.5 ^{1*}	12.3	12.3
B: TW-9	4.5*	4.5 ^{1*}	12.9 ¹	12.9	12.9
C: TW-18	4.5*	11.6 ¹	11.6 ¹	11.6	11.6
D: TW-23	4.5*	4.5*	4.5*	4.5*	10.8 ²
E: TW-33	4.5*	4.5*	4.5*	4.5*	10.5 ²
Hourly Emissions (lb/hr)	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
A: TW-2	4.0*	4.0 ^{1*}	4.0 ^{1*}	2.8	2.8
B: TW-8	1.9*	1.9 ^{1*}	2.8 ¹	2.8	2.8
C: TW-17	7.6*	2.8 ¹	2.8 ¹	2.8	2.8
D: TW-22	1.9*	1.9*	1.9*	1.9*	2.8 ²
E: TW-32	0.7*	0.7*	0.7*	0.7*	2.8 ²
A: TW-62	1.2*	1.2 ^{1*}	1.2 ^{1*}	4.3	4.3
B: TW-9	1.2*	1.2 ^{1*}	4.5 ¹	4.5	4.5
C: TW-18	1.2*	4.1 ¹	4.1 ¹	4.1	4.1
D: TW-23	1.2*	1.2*	1.2*	1.2*	3.8 ²
E: TW-33	1.6*	1.6*	1.6*	1.6*	3.7 ²

¹Upon notification of the Piedmont Regional Office, the permittee may elect to swap the order in which SCR systems are installed and emission limits are revised for “A”, “B” and “C” trains.

²Upon notification of the Piedmont Regional Office, the permittee may elect to swap the towers on which SCR systems are installed and emission limits are revised between the “D” and “E” train ammonium nitrite and/or hydroxylamine diammonium sulfonate towers.

*These pre-modification limits include only filterable particulate. The post-modification limits include both filterable and condensable particulate.

(Condition #110 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

100. Particulate matter (PM-2.5) emissions from the operation of the ammonium nitrite and hydroxylamine diammonium sulfonate towers shall not exceed the limits specified below. Annual emissions shall be calculated monthly as the sum of each previous consecutive 12-month period. Phases 1-5 shall be defined as specified in Condition #96.

Annual Emissions (tons/yr)	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
A: TW-2	5.8*	5.8 ^{1*}	5.8 ^{1*}	7.0	7.0
B: TW-8	3.0*	3.0 ^{1*}	7.0 ¹	7.0	7.0
C: TW-17	13.7*	7.0 ¹	7.0 ¹	7.0	7.0
D: TW-22	1.0*	1.0*	1.0*	1.0*	7.0
E: TW-32	1.0*	1.0*	1.0*	1.0*	7.0
A: TW-62	2.3*	2.3 ^{1*}	2.3 ^{1*}	9.2	9.2
B: TW-9	2.3*	2.3 ^{1*}	9.5 ¹	9.5	9.5
C: TW-18	2.3*	8.8 ¹	8.8 ¹	8.8	8.8
D: TW-23	2.3*	2.3*	2.3*	2.3*	8.4 ²
E: TW-33	2.3*	2.3*	2.3*	2.3*	8.3 ²
Hourly Emissions (lb/hr)	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
A: TW-2	2.0*	2.0 ^{1*}	2.0 ^{1*}	2.8	2.8
B: TW-8	1.0*	1.0 ^{1*}	2.8 ¹	2.8	2.8
C: TW-17	3.8*	2.8 ¹	2.8 ¹	2.8	2.8
D: TW-22	0.4*	0.4*	0.4*	0.4*	2.8
E: TW-32	0.4*	0.4*	0.4*	0.4*	2.8
A: TW-62	0.6*	0.6 ^{1*}	0.6 ^{1*}	3.7	3.7
B: TW-9	0.6*	0.6 ^{1*}	3.8 ¹	3.8	3.8
C: TW-18	0.6*	3.5 ¹	3.5 ¹	3.5	3.5
D: TW-23	0.6*	0.6*	0.6*	0.6*	3.4 ²
E: TW-33	0.8*	0.8*	0.8*	0.8*	3.3 ²

¹Upon notification of the Piedmont Regional Office, the permittee may elect to swap the order in which SCR systems are installed and emission limits are revised for “A”, “B” and “C” trains.

²Upon notification of the Piedmont Regional Office, the permittee may elect to swap the towers on which SCR systems are installed and emission limits are revised between the “D” and “E” train ammonium nitrite and/or hydroxylamine diammonium sulfonate towers.

*These pre-modification limits include only filterable particulate. The post-modification limits include both filterable and condensable particulate.

(Condition #111 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

101. Sulfur dioxide emissions from the operation of the hydroxylamine diammonium sulfonate towers shall not exceed the limits specified below. Annual emissions shall be calculated monthly as the sum of each previous consecutive 12-month period. Phases 1-5 shall be defined as specified in Condition #96.

Annual Emissions (tons/yr)	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
A: TW-62	39.8	39.8 ¹	39.8 ¹	8.8	8.8
B: TW-9	69.3	69.3 ¹	8.8 ¹	8.8	8.8
C: TW-18	7.0	8.8 ¹	8.8 ¹	8.8	8.8
D: TW-23	7.0	7.0	7.0	7.0	8.8 ²
E: TW-33	8.3	8.3	8.3	8.3	8.3 ²
Hourly Emissions (lb/hr)	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
A: TW-62	9.7	9.7 ¹	9.7 ¹	2.2	2.2
B: TW-9	17.0	17.0 ¹	2.2 ¹	2.2	2.2
C: TW-18	1.7	2.2 ¹	2.2 ¹	2.2	2.2
D: TW-23	1.7	1.7	1.7	1.7	2.2 ²
E: TW-33	2.1	2.1	2.1	2.1	2.1 ²

¹Upon notification of the Piedmont Regional Office, the permittee may elect to swap the order in which SCR systems are installed and emission limits are revised for “A”, “B” and “C” trains.

²Upon notification of the Piedmont Regional Office, the permittee may elect to swap the towers on which SCR systems are installed and emission limits are revised between the “D” and “E” train ammonium nitrite and/or hydroxylamine diammonium sulfonate towers.

(Condition #112 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

102. Emissions from the operation of the Area 9-New modular cooling towers shall not exceed the limits specified below:

Particulate Matter	0.13 lb/hr	0.60 tons/yr
Particulate Matter (PM-10)	0.02 lb/hr	0.09 tons/yr
Particulate Matter (PM-2.5)	0.02 lb/hr	0.09 tons/yr

(Condition #113 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

103. Combined emissions from the operation of the Area 9 modular cooling towers, cooling tower TW-37 and the Area 9 quench modular cooling towers shall not exceed the limits specified below:

Particulate Matter	2.20 lb/hr	9.62 tons/yr
Particulate Matter (PM-10)	0.33 lb/hr	1.45 tons/yr

Particulate Matter (PM-2.5)

0.33 lb/hr

1.45 tons/yr

(Condition #114 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Monitoring

104. The permittee shall operate continuous emission monitoring systems (CEMS) for NO_x monitoring, including continuous emission rate monitoring systems (CERMS), on the inlet and outlet of the SCR systems required by Condition #74. The NO_x CEMS and CERMS shall be installed, calibrated, certified, maintained, audited and operated in accordance with the requirements of 40 CFR 60, including Appendices B and F. Data from the NO_x CEMS and the CERMS shall be used to determine direct compliance with the control efficiency requirement of Condition #74 and the hourly emission limit in Condition #97 as a three (3) hour rolling average. All three (3) hour rolling averages must be reported quarterly in the excess emission report. The permittee may submit an initial alternate monitoring plan (AMP) for review and conditional approval to the Piedmont Regional Office. The initial AMP shall provide details of any proposal to calculate the inlet flow to the SCR systems required by Condition #74 by indirect measurement. As an alternative to the inlet flow monitoring requirements of this condition for the SCR systems required by Condition #74, the permittee may choose to calculate the inlet flow for these SCR systems using indirect measurements in accordance with the initial alternate monitoring plan (AMP) conditionally approved by the Piedmont Regional Office. If the permittee chooses to implement the monitoring requirements of the conditionally approved initial AMP, the permittee shall collect and record inlet flow data for the SCR systems required by Condition #74 in accordance with both methods (direct measurement as specified in this condition and calculation by indirect measurement as specified in the conditionally approved initial AMP) for the first 12 months of CERMS operation following the implementation of the initial AMP. Within 90 days of the end of this 12-month period, the permittee shall submit a final AMP, including a comparison of both sets of inlet flow data, to the Piedmont Regional Office for review and approval. Upon approval of any final AMP by the Piedmont Regional Office, the permittee shall comply with the SCR systems' inlet flow monitoring requirements of the approved final AMP (as amended) in lieu of the SCR systems' inlet flow monitoring requirements of Conditions #104-107.
(Condition #115 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
105. Unless otherwise allowed by Condition #104, by June 30, 2015, the permittee shall complete installation and commence operation of continuous emission monitoring systems (CEMS) for NO_x monitoring, including continuous emission rate monitoring systems (CERMS), on the inlet and outlet of the SCR systems required by Condition #75. The NO_x CEMS and CERMS shall be installed, calibrated, certified, maintained, audited and operated in accordance with the requirements of 40 CFR 60, including Appendices B and F. Data from the NO_x CEMS and the CERMS shall be used to determine direct compliance with the control efficiency requirement of Condition #75 and the hourly emission limit in Condition #97 as a three (3) hour rolling average. All three (3) hour rolling averages must be reported quarterly in the excess emission report.
(Condition #116 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
106. Unless otherwise allowed by Condition #104, by June 30, 2017, the permittee shall complete installation and commence operation of continuous emission monitoring systems (CEMS) for NO_x monitoring, including continuous emission rate monitoring systems (CERMS), on the inlet and outlet of the SCR systems required by Condition #76. The NO_x CEMS and CERMS shall be installed, calibrated, certified, maintained, audited and operated in accordance with the requirements of 40 CFR 60, including Appendices B and F. Data from the NO_x CEMS and the CERMS shall be used to determine direct compliance with the control efficiency requirement of Condition #76 and the hourly emission limit in Condition #97 as a three

(3) hour rolling average. All three (3) hour rolling averages must be reported quarterly in the excess emission report.

(Condition #117 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

107. Unless otherwise allowed by Condition #104, by June 30, 2019, the permittee shall complete installation and commence operation of continuous emission monitoring systems (CEMS) for NO_x monitoring, including continuous emission rate monitoring systems (CERMS), on the inlet and outlet of the SCR systems required by Condition #77. The NO_x CEMS and CERMS shall be installed, calibrated, certified, maintained, audited and operated in accordance with the requirements of 40 CFR 60, including Appendices B and F. Data from the NO_x CEMS and the CERMS shall be used to determine direct compliance with the control efficiency requirement of Condition #77 and the hourly emission limit in Condition #97 as a three (3) hour rolling average. All three (3) hour rolling averages must be reported quarterly in the excess emission report.

(Condition #118 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

108. A continuous emission monitoring system (CEMS) for NO_x monitoring, including a continuous emission rate monitoring system (CERMS), shall be installed on the "D" train ammonium nitrite and hydroxylamine diammonium sulfonate towers (TW-22 and TW-23). The NO_x CEMS and CERMS shall be calibrated, maintained, audited and operated in accordance with the requirements of 40 CFR 60, Appendices B and F. Data from the NO_x CEMS and the CERMS shall be used to determine direct compliance with the hourly emission limits in Condition #97 on a three (3) hour rolling average. All three (3) hour rolling averages must be reported quarterly in the excess emission report. If the permittee elects to install the CEMS required by Condition #107 on TW-22 and/or TW-23, the requirements of this condition shall expire for TW-22 and/or TW-23 once the requirements of Condition #107 are fulfilled.

(Condition #119 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

109. A continuous emission monitoring system (CEMS) for NO_x monitoring, including a continuous emission rate monitoring system (CERMS), shall be installed on the "E" train ammonium nitrite and hydroxylamine diammonium sulfonate towers (TW-32 and TW-33). The NO_x CEMS and CERMS shall be calibrated, maintained, audited and operated in accordance with the requirements of 40 CFR 60, Appendices B and F. Data from the NO_x CEMS and the CERMS shall be used to determine direct compliance with the hourly emission limits in Condition #97 on a three (3) hour rolling average. All three (3) hour rolling averages must be reported quarterly in the excess emission report. If the permittee elects to install the CEMS required by Condition #107 on TW-32 and/or TW-33, the requirements of this condition shall expire for TW-32 and/or TW-33 once the requirements of Condition #107 are fulfilled.

(Condition #120 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

110. Performance evaluations and an initial relative accuracy test audit of each CEMS/CERMS specified in Conditions #104-107 shall be conducted in accordance with 40 CFR Part 60 Appendix B, and shall take place by the dates specified in Conditions #104-107. Two copies of the performance evaluations report shall be submitted to the Piedmont Regional Office within 60 days of the evaluation. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation and calibration of the device. A 30-day notification, prior to the demonstration of continuous monitoring system's performance, and subsequent notifications shall be submitted to the Piedmont Regional Office.

(Condition #121 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

111. EMCAMS shall be installed and operated on A, B and C trains (TW-2 & 62, TW-8 & 9, TW-17 & 18) in Area 9. The EMCAMS systems shall meet all the requirements detailed in Appendix A of the August 26, 2002 Consent Order between DEQ and the Honeywell International, Inc. In addition, the permittee shall

maintain and implement the most recently approved EMCAMS monitoring plan. The monitoring plan shall specify the process parameters (temperature, pressure, feed rates, flow rates, etc.) monitored by EMCAMS for each A-C train emission unit, along with associated monitoring locations, methods and frequencies and data acquisition, QA/QC procedures and recordkeeping. The monitoring plan shall also define operating ranges for each monitoring parameter and procedures for identifying parameter excursions and correcting the operation of affected emission units in the case of parameter excursions. The permittee shall maintain a copy of the most recently approved monitoring plan on site at all times. As the requirements of Conditions #104-106 are fulfilled for "A", "B" and "C" trains, the EMCAMS requirements of this Condition, Condition #116.c-d and Condition #117.a-d shall no longer apply to each respective Area 9 production train.

(Appendix A of 8/26/2002 Consent Order, Condition #122 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

112. Initial performance tests shall be conducted for nitrogen oxides, particulate matter, particulate matter (PM-10) and particulate matter (PM-2.5) for the ammonium nitrite tower and hydroxylamine diammonium sulfonate tower for each ("A-E") Area 9 production train, using EPA Reference Methods or equivalent methods approved by the Piedmont Regional Office, to determine compliance with the emission limits in Conditions #97-100. The tests for each tower that is equipped with SCR systems in accordance with Conditions #74-77 shall be performed, and demonstrate compliance, within 180 days of the date the SCR systems required by Conditions #74-77 commence operation for that tower. The tests for the towers that are not equipped with SCR systems in accordance with Conditions #74-77 shall be performed, and demonstrate compliance, on the same date as the tests performed on the towers equipped with SCR systems in accordance with Condition #77. During these tests, the permittee shall be required to operate all process equipment at a minimum of 80% of their maximum rated capacity. Tests shall be conducted and reported and data reduced as set forth in Sections 9VAC5-50-30. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. Three copies of the test results shall be submitted to the Piedmont Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit.
(Condition #123 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
113. Initial performance tests shall be conducted for sulfur dioxide for the hydroxylamine diammonium sulfonate tower for each ("A-E") Area 9 production train, using EPA Reference Methods or equivalent methods approved by the Piedmont Regional Office, to determine compliance with the emission limits in Condition #101. The tests for each tower that is equipped with SCR systems in accordance with Conditions #74-77 shall be performed, and demonstrate compliance, within 180 days of the date the SCR systems required by Conditions #74-77 commence operation for that train. The tests for each tower that is not equipped with SCR systems in accordance with Conditions #74-77 shall be performed, and demonstrate compliance, on the same date as the tests performed on the towers equipped with SCR systems in accordance with Condition #77. During these tests, the permittee shall be required to operate all process equipment at a minimum of 80% of their maximum rated capacity. Tests shall be conducted and reported and data reduced as set forth in Sections 9VAC5-50-30. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. Three copies of the test results shall be submitted to the Piedmont Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit.
(Condition #124 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
114. The permittee shall install and operate devices to continuously measure and permanently record the control device operating parameters described below. Each monitoring device shall be installed, maintained, calibrated and operated in accordance with approved procedures which shall include, as a minimum, the

manufacturer's written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the specified control device is operating.

a. A-Train

- i. Ammonium nitrite tower (TW-2): During the performance test required by Condition #112, the permittee shall establish control device operating parameters and ranges necessary to demonstrate compliance with the requirements of Conditions #98-100. The permittee shall submit the proposed operating parameters and ranges to the Piedmont Regional Office for review and approval within 60 days of reporting the results of the performance test.
- ii. Hydroxylamine diammonium sulfonate tower (TW-62) prior to date the SCR system required by Conditions #74-76 commences operation: The total pressure drop across and the scrubber liquid flow rate for the TW-62 packed bed scrubber and the total pressure drop across the TW-62 mist eliminator (SE-88). The permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for the TW-62 packed bed scrubber and the total pressure drop across SE-88 necessary to demonstrate compliance with the requirements of Conditions #80 and #98-101. The permittee shall submit the proposed operating parameters and ranges to the Piedmont Regional Office for review and approval within 60 days of June 28, 2011.
- iii. Hydroxylamine diammonium sulfonate tower (TW-62) after the date the SCR system required by Conditions #74-76 commences operation: The total pressure drop across and the scrubber liquid flow rate for the TW-62 packed bed scrubber and the total pressure drop across the TW-62 mist eliminator (SE-88). During the performance tests required by Conditions #112 and #113, the permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for the TW-62 packed bed scrubber and the total pressure drop across SE-88 necessary to demonstrate compliance with the requirements of Conditions #78, #80 and #98-101. The permittee shall submit the proposed operating parameters and ranges to the Piedmont Regional Office for review and approval within 60 days of reporting the results of the performance tests.

b. B-Train

- i. Ammonium nitrite tower (TW-8) prior to date the SCR system required by Conditions #74-76 commences operation: The total pressure drop across and the scrubber liquid flow rate for the TW-8 Venturi scrubber (SE-179). The permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for SE-179 necessary to demonstrate compliance with the requirements of Conditions #81 and #98-100. The permittee shall submit the proposed operating parameters and ranges to the Piedmont Regional Office for review and approval within 60 days of the date of this permit (June 28, 2011).
- ii. Ammonium nitrite tower (TW-8) after the date the SCR system required by Conditions #74-76 commences operation: The total pressure drop across and the scrubber liquid flow rate for the TW-8 Venturi scrubber (SE-179). During the performance test required by Condition #112, the permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for SE-179 necessary to demonstrate compliance with the requirements of Conditions #81 and #98-100. The permittee shall submit the proposed operating parameters and ranges to the Piedmont Regional Office for review and approval within 60 days of reporting the results of the performance test.

- iii. Hydroxylamine diammonium sulfonate tower (TW-9) prior to date the SCR system required by Conditions #74-76 commences operation: The total pressure drop across and the scrubber liquid flow rate for the TW-9 packed bed scrubber and the total pressure drop across the TW-9 mist eliminator (SE-89). The permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for the TW-9 packed bed scrubber and the total pressure drop across SE-89 necessary to demonstrate compliance with the requirements of Conditions #82 and #98-101. The permittee shall submit the proposed operating parameters and ranges to the Piedmont Regional Office for review and approval within 60 days of the date of this permit (June 28, 2011).
 - iv. Hydroxylamine diammonium sulfonate tower (TW-9) after the date the SCR system required by Conditions #74-76 commences operation: The total pressure drop across and the scrubber liquid flow rate for the TW-9 packed bed scrubber and the total pressure drop across the TW-9 mist eliminator (SE-89). During the performance tests required by Conditions #112 and #113, the permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for the TW-9 packed bed scrubber and the total pressure drop across SE-89 necessary to demonstrate compliance with the requirements of Conditions #79, #82 and #98-101. The permittee shall submit the proposed operating parameters and ranges to the Piedmont Regional Office for review and approval within 60 days of reporting the results of the performance tests.
- c. C-Train
- i. Ammonium nitrite Section (TW-17): During the performance test required by Condition #112, the permittee shall establish control device operating parameters and ranges necessary to demonstrate compliance with the requirements of Conditions #98-100. The permittee shall submit the proposed operating parameters and ranges to the Piedmont Regional Office for review and approval within 60 days of reporting the results of the performance test.
 - ii. Hydroxylamine diammonium sulfonate tower (TW-18) prior to date the SCR system required by Conditions #74-76 commences operation: The total pressure drop across and the scrubber liquid flow rate for the TW-18 packed bed scrubber (SE-19) and the total pressure drop across the TW-18 mist eliminator (SE-90). The permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for SE-19 and the total pressure drop across SE-90 necessary to demonstrate compliance with the requirements of Conditions #83 and #98-101. The permittee shall submit the proposed operating parameters and ranges to the Piedmont Regional Office for review and approval within 60 days of June 28, 2011.
 - iii. Hydroxylamine diammonium sulfonate tower (TW-18) after the date the SCR system required by Conditions #74-76 commences operation: The total pressure drop across and the scrubber liquid flow rate for the TW-18 packed bed scrubber (SE-19) and the total pressure drop across the TW-18 mist eliminator (SE-90). During the performance tests required by Conditions #112 and #113, the permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for SE-19 and the total pressure drop across SE-90 necessary to demonstrate compliance with the requirements of Conditions #83 and #98-101. The permittee shall submit the proposed operating parameters and ranges to the Piedmont Regional Office for review and approval within 60 days of reporting the results of the performance tests.
- d. D-Train
- i. Ammonium nitrite Section (TW-22) prior to date the SCR system required by Condition #77 commences operation: The total pressure drop across and the scrubber liquid flow rate for the TW-

22 Venturi scrubber (SE-65) and the temperature and circulation rate for the TW-22 NO oxidizer time tank (VT-883). The permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for SE-65 and the temperature and circulation rate for VT-883 necessary to demonstrate compliance with the requirements of Conditions #84-85 and #98-100. The permittee shall submit the proposed operating parameters and ranges to the Piedmont Regional Office for review and approval within 60 days of June 28, 2011.

- ii. Ammonium nitrite Section (TW-22) after the date the SCR system required by Condition #77 commences operation: The total pressure drop across and the scrubber liquid flow rate for the TW-22 Venturi scrubber (SE-65) and the temperature and circulation rate for the TW-22 NO oxidizer time tank (VT-883). During the performance test required by Condition #112, the permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for SE-65 and the temperature and circulation rate for VT-883 necessary to demonstrate compliance with the requirements of Conditions #84-85 and #98-100. The permittee shall submit the proposed operating parameters and ranges to the Piedmont Regional Office for review and approval within 60 days of reporting the results of the performance test.
 - iii. Hydroxylamine diammonium sulfonate tower (TW-23) prior to date the SCR system required by Condition #77 commences operation: The total pressure drop across and the scrubber liquid flow rate for the TW-23 packed bed scrubber (SE-32) and the total pressure drop across the TW-23 mist eliminator (SE-91). The permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for SE-32 and the total pressure drop across SE-91 necessary to demonstrate compliance with the requirements of Conditions #86 and #98-101. The permittee shall submit the proposed operating parameters and ranges to the Piedmont Regional Office for review and approval within 60 days of June 28, 2011.
 - iv. Hydroxylamine diammonium sulfonate tower (TW-23) after the date the SCR system required by Condition #77 commences operation: The total pressure drop across and the scrubber liquid flow rate for the TW-23 packed bed scrubber (SE-32) and the total pressure drop across the TW-23 mist eliminator (SE-91). During the performance tests required by Conditions #112 and #113, the permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for SE-32 and the total pressure drop across SE-91 necessary to demonstrate compliance with the requirements of Conditions #86 and #98-101. The permittee shall submit the proposed operating parameters and ranges to the Piedmont Regional Office for review and approval within 60 days of reporting the results of the performance tests.
- e. E-Train
- i. Ammonium nitrite Section (TW-32) prior to date the SCR system required by Condition #77 commences operation: The total pressure drop across and the scrubber liquid flow rate for the TW-32 Venturi scrubber (SE-116) and the temperature and circulation rate for the TW-32 NO oxidizer time tank (VT-847). The permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for SE-116 and the temperature and circulation rate for VT-847 necessary to demonstrate compliance with the requirements of Conditions #87-88 and #98-100. The permittee shall submit the proposed operating parameters and ranges to the Piedmont Regional Office for review and approval within 60 days of June 28, 2011.
 - ii. Ammonium nitrite Section (TW-32) after the date the SCR system required by Condition #77 commences operation: The total pressure drop across and the scrubber liquid flow rate for the TW-32 Venturi scrubber (SE-116) and the temperature and circulation rate for the TW-32 NO oxidizer

time tank (VT-847). During the performance test required by Condition #112, the permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for SE-116 and the temperature and circulation rate for VT-847 necessary to demonstrate compliance with the requirements of Conditions #87-88 and #98-100. The permittee shall submit the proposed operating parameters and ranges to the Piedmont Regional Office for review and approval within 60 days of reporting the results of the performance test.

iii. Hydroxylamine diammonium sulfonate tower (TW-33) prior to date the SCR system required by Condition #77 commences operation: The total pressure drop across and the scrubber liquid flow rate for the TW-33 packed bed scrubber (SE-54) and the total pressure drop across the TW-33 mist eliminator (SE-101). The permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for SE-54 and the total pressure drop across SE-101 necessary to demonstrate compliance with the requirements of Conditions #89-91 and #98-101. The permittee shall submit the proposed operating parameters and ranges to the Piedmont Regional Office for review and approval within 60 days of June 28, 2011.

iv. Hydroxylamine diammonium sulfonate tower (TW-33) after the date the SCR system required by Condition #77 commences operation: The total pressure drop across and the scrubber liquid flow rate for the TW-33 packed bed scrubber (SE-54) and the total pressure drop across the TW-33 mist eliminator (SE-101). During the performance tests required by Conditions #112 and #113, the permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for SE-54 and the total pressure drop across SE-101 necessary to demonstrate compliance with the requirements of Conditions #89-91 and #98-101. The permittee shall submit the proposed operating parameters and ranges to the Piedmont Regional Office for review and approval within 60 days of reporting the results of the performance tests.

f. Unless alternate operating parameters and/or ranges have been approved by the Piedmont Regional Office, the permittee shall operate the emission units and control devices specified in paragraphs (a-e) of this condition in compliance with the operating parameters and ranges established in accordance with paragraphs (a-e) of this condition.

(Condition #125 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

115. The permittee shall implement its approved Preventative Maintenance and Operation Plan (PMO Plan), as may be updated in accordance with this condition, at all times, including periods of startup, shutdown and malfunction of its process units, control devices, CEMS, and CMSs. The PMO Plan shall consist of a compilation of the permittee's procedures for good air pollution control practices and minimizing emissions. The PMO Plan shall have as its goals the elimination of process and control device malfunctions of the low temperature SCRs, scrubbers, NOx Abatement Technology, CEMS and CMSs in Area 9. The PMO Plan shall include, but not be limited to, startup and shutdown procedures, emergency procedures, and schedules for preventative maintenance and maintenance turnarounds that coincide with scheduled turnarounds of major process units. The PMO shall ensure that the permittee is prepared to correct malfunctions as soon as practicable to minimize emissions. To ensure that malfunctions are minimized, the PMO shall include a procedure for conducting "Root Cause Analysis" for malfunctioning process, air pollution control and monitoring equipment that would result in NOx emissions from Area 9 in excess of allowable limits for more than one hour. The PMO Plan shall include a procedure for conducting a Root Cause Analysis for any particular component of a CEMS or CMS which component exhibits three (3) or more unscheduled failures resulting in down time greater than one (1) hour each in any calendar quarter. This Root Cause Analysis shall set forth all significant contributing causes to the excess emissions and shall provide analysis of the measures available to reduce the likelihood of a recurrence. If more than one alternative exists to address the Root Cause, the analysis shall discuss the alternatives, the probable

effectiveness and the cost of the alternatives. The analysis shall evaluate possible design, operation and maintenance changes. The permittee shall review its PMO annually and update its PMO, as necessary, to incorporate, at a minimum, the results of any Root Cause Analysis. The permittee shall maintain the original PMO Plan and all subsequent revisions at the Facility for a period of five (5) years and have them available for review by the Agencies.

(Condition #22 of the 2/19/2015 NSR Permit, Paragraph #28 of the March 28, 2013 Consent Decree and 9VAC5-80-110)

Recordkeeping

116. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to the following:
- a. Control requirements: Control device operating parameters specified in Condition #114.
 - b. Throughput limitations:
 - i. Annual throughputs of sulfur or ammonia for the equipment specified in Conditions #94-96;
 - ii. The maximum hourly production rate of ammonium nitrite for each ammonium nitrite tower for "A" through "E" trains in Area 9, recorded monthly; and
 - iii. The maximum hourly production rate of hydroxylamine diammonium sulfonate for each hydroxylamine diammonium sulfonate tower in "A" through "E" trains in Area 9, recorded monthly.
 - c. EMCAMS monitoring parameter records as specified by EMCAMS monitoring plan required by Condition #111.
 - d. EMCAMS production/emission records as follows:
 - i. The hourly ammonia feed rates for TW-2, TW-8 and TW-17;
 - ii. The hourly sulfur feed rates for TW-62, TW-9 and TW-18; and
 - iii. The annual NO_x emission rates for TW-2, TW-62, TW-8, TW-9, TW-17 and TW-18, calculated monthly as the sum of each consecutive 12-month period.
 - e. Emission limits: CEMS data, production rates and other data necessary to determine compliance with the emission limits in Conditions #97-101.
 - f. Results of all performance tests, visible emission evaluations and performance evaluations.
 - g. Continuous monitoring system calibrations and calibration checks, percent operating time, and excess emissions.
 - h. Annual average cooling water total dissolved solids records and design cooling water liquid drift records for the Area 9-New modular cooling towers, the Area 9 modular cooling towers, cooling tower TW-37 and the Area 9 quench modular cooling towers.

- i. Records of all periods of startups, shutdowns, malfunctions, non-operation, bypasses of control devices and repairs for each process unit, control device, and monitoring system addressed in the PMO Plan required by Condition #115. Such records shall include the times and duration of each event, a brief description of the event, the cause or likely cause of the event, and any actions taken to minimize excess emissions during the event, and whether the event and Honeywell's actions were consistent with the PMO Plan required by Condition #115. In addition, such records shall also include a record of the calibration checks and low- and high-level adjustments for each control device and monitoring system.
- j. Maintenance, operations, and training
 - i. Scheduled and unscheduled maintenance records for all process equipment and air pollution control equipment;
 - ii. Inventory of spare parts to minimize durations of air pollution control equipment breakdowns;
 - iii. Written operating procedures for all process equipment and air pollution control equipment; and
 - iv. Operator training records.

These records shall be available for inspection by the DEQ and shall be current for the most recent five (5) years.

(Conditions #22 and #129 of the 2/19/2015 NSR Permit, Paragraph #30 of the March 28, 2013 Consent Decree and 9VAC5-80-110)

Reporting

117. The permittee shall furnish written reports to the Piedmont Regional Office as follows:

- a. Semi-annual reports of the annual ammonia feed rates for the A, B and C train ammonium nitrite towers calculated monthly as the sum of each previous consecutive 12-month period;
- b. Semi-annual reports of the annual sulfur feed rates for the A, B and C train hydroxylamine diammonium sulfonate towers calculated monthly as the sum of each previous consecutive 12-month period;
- c. Annual reports of the annual NO_x emission rates for the A, B and C train ammonium nitrite towers calculated monthly as the sum of each previous consecutive 12-month period;
- d. Annual reports of the annual NO_x emission rates for the A, B and C train hydroxylamine diammonium sulfonate towers calculated monthly as the sum of each previous consecutive 12-month period;
- e. Excess emission reports for each CEMS/CERMS required by Conditions #104-109 that has commenced operation to the Piedmont Regional Office within 30 days after the end of each calendar quarter. Each quarterly excess emission report shall contain, at a minimum, the dates included in the calendar quarter and the following (additional details of the quarterly reports are to be arranged with the Piedmont Regional Office):

- i. The three (3) hour rolling averages of NO_x emissions, in lbs/hr.
- ii. The results of daily calibration drift tests.
- iii. Periods of time when the monitor was not functioning, reasons why, and corrective actions taken.
- iv. Results of quarterly accuracy assessment.
- v. Periods of excess emissions with reasons, or a statement that no excess emissions occurred.
- vi. Identification of times when NO_x concentration exceeded full span of CEMS.
- vii. For the 12-month period following implementation of any approved initial AMP for the CEMS/CERMS required by Condition #104 only, a comparison (between the two methods specified in Condition #104) of the SCR systems' inlet flow data for the calendar quarter. This portion of the report shall be copied to U.S. EPA Region III at the following address:

Chief, Air Section
Enforcement & Compliance Assurance Division
Air, RCRA and Toxics Branch
US EPA Region 3
1650 Arch Street – 3ED21
Philadelphia, PA 19103

At a minimum, all one hour averages shall be available on site at all times and shall be accessible for inspection by DEQ and shall be current for the most recent five (5) years.
(Conditions #126 and #127 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

118. The permittee shall furnish written notification to the Piedmont Regional Office of:
- a. The actual date on which construction of each SCR and each CEMS required by Conditions #74-77 and #104-107 commenced within 10 days after such date.
 - b. The actual start-up date of each SCR and each CEMS required by Conditions #74-77 and #104-107 within 10 days after such date.
 - c. The anticipated date of each CEMS performance evaluation required by Condition #110 postmarked at least thirty (30) days prior to such date.
 - d. The anticipated date of each performance test required by Conditions #112-113 postmarked at least thirty (30) days prior to such date.
 - e. The actual date each phase defined in Condition #96 is completed within 10 days after such date. This notification shall also include a summary of emission limits from Conditions #97-101 applicable to each ammonium nitrite and hydroxylamine diammonium sulfonate tower of "A-E" trains for the newly

commenced phase and updated net emission increase calculations (similar in format to Tables 1-6 of Appendix A of the 2/19/2015 NSR permit) for the newly commenced phase.
(Condition #128 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

AREA 8/16 - CRUDE CAPROLACTAM PRODUCTION

Limitations

Control Equipment Requirements

119. VOC emissions from VT-221, A-Toluizer (CL-29), B-Toluizer (CL-28), C-Toluizer (CL-29new), CL-81, CL-62new, C-361, CL-15, CL-62, HT-52 and the Area 8 turbogizer separation system (APT-14, APT-26, VT-59, VT-59new, HT-66) shall be controlled by a thermal oxidizer. The TOC reduction efficiency of the oxidizer shall be at least 98% or to a TOC concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen, whichever is less stringent. Upon the written approval of the Piedmont Regional Office, the permittee may choose to use an alternate control technology for the control of VOC emissions from VT-221, HT-52 or the Area 8 turbogizer separation system (APT-14, APT-26, VT-59, VT-59new, HT-66). This approval shall be contingent upon adequate demonstration that the proposed alternate control technology will achieve a VOC reduction efficiency equal to or greater than the thermal oxidizer required by this condition. As of March 1, 2013 (the date of the DEQ approval letter), SC-325 has been approved as an alternate control technology by the Piedmont Regional Office for HT-52 and the Area 8 turbogizer separation system (APT-14, APT-26, VT-59, VT-59new, HT-66).
(Condition #E.4 of the 3/26/1997 RACT Agreement, Condition #130 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
120. VOC emissions from the organic liquid storage tank VT-221 shall be controlled by a control method that will remove, destroy or prevent the discharge into the atmosphere of at least 60% by weight of VOC emissions during the filling of such tank. Control of VOC emissions from VT-221 as specified in Condition #119 shall be considered acceptable achievement of this standard.
(9VAC5-80-110, 9VAC5-40-3430 A and 9VAC5-40-3440 A)
121. Fugitive VOC emissions resulting from equipment leaks in those portions of Area 8/16 not already subject to fugitive emissions requirements from other applicable regulations shall be controlled through a Leak Detection and Repair (LDAR) program. The LDAR program shall be substantively equivalent to the LDAR requirements specified in 40 CFR 60, Subpart VV.
(Condition #E.7 of the 3/26/1997 RACT Agreement and 9VAC5-80-110)
122. Particulate emissions from the Area 8/16 modular cooling towers shall be controlled by a limiting the total dissolved solids of the cooling water to 2,500 parts per million as an annual average (12-month rolling basis) and limiting each cooling towers liquid drift to 0.001% or less.
(Condition #131 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Throughput Limits

123. The annual production of crude caprolactam from the Area 8 cyclohexanone oxime rearrangement reactor system (APT-8, APT-16, APT-32, SP-681, VT-96, VT-226, VT-404A, VT-664, VT-867) shall not exceed 159,885 rearranger production units, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #132 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

124. The combined annual input of oleum to the Area 8 cyclohexanone oxime rearrangement reactor system (APT-8, APT-16, APT-32, SP-681, VT-96, VT-226, VT-404A, VT-664, VT-867) shall not exceed 209,367.5 rearranger oleum units, calculated monthly as the sum of each previous consecutive 12-month period.
 (Condition #133 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
125. The combined annual input of cyclohexanone oxime to the Area 8 cyclohexanone oxime rearrangement reactor system (APT-8, APT-16, APT-32, SP-681, VT-96, VT-226, VT-404A, VT-664, VT-867) shall not exceed 92,767.5 rearranger oxime units, calculated monthly as the sum of each previous consecutive 12-month period.
 (Condition #134 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
126. The annual input of Area 6 cyclohexanone to Area 8/16 Crude Caprolactam Production shall not exceed 108,916,000 Area 8/16 input units, calculated monthly as the sum of each previous consecutive 12-month period.
 (Condition #138 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
127. The combined annual input of mixed aqueous and organic feed to the toluene/sulfate stripping column system (CL-15 and CL-81 operating in series) shall not exceed 540,320 toluene/sulfate stripping column units, calculated monthly as the sum of each previous consecutive 12-month period.
 (Condition #135 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
128. The annual input of mixed toluene/caprolactam feed to the toluene/caprolactam distillation column (CL-62) shall not exceed 147,610 toluene/caprolactam distillation column units, calculated monthly as the sum of each previous consecutive 12-month period.
 (Condition #136 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
129. The annual input of mixed toluene/caprolactam feed to the toluene/caprolactam distillation column (CL-62new) shall not exceed 147,610 toluene/caprolactam distillation column units, calculated monthly as the sum of each previous consecutive 12-month period.
 (Condition #137 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
130. The annual production of cobalt catalyst from the Area 8/16 Cobalt Catalyst Manufacturing process shall not exceed 10.8 Area 8/16 input units, calculated monthly as the sum of each previous consecutive 12-month period.
 (Condition #15 of the 7/6/1979 NSR Permit and 9VAC5-80-110)

Emission Limits

131. Emissions from the operation of the Area 8 cyclohexanone oxime rearrangement reactor system (APT-8, APT-16, APT-32, SP-681, VT-96, VT-226, VT-404A, VT-664, VT-867) shall not exceed the limits specified below:

VOC	8.4 lb/hr	0.2 tons/yr
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(Condition #140 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

132. Emissions from the combined operation of the Area 8 turbogizer separation system (APT-14, APT-26, VT-59, VT-59new, HT-66) and HT-52, as exhausted through the Area 8/16 thermal oxidizer (or approved alternate control device), shall not exceed the limits specified below:

VOC	0.8 lb/hr	0.4 tons/yr
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(Condition #141 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

133. Emissions from the operation of Area 8/16 Crude Caprolactam Production (inclusive of all emission units specified in the Area 8/16 section of Condition #2 of the 2/19/2015 NSR Permit and the emissions limited by Condition #134) shall not exceed the limits specified below:

VOC	25.1 lb/hr	14.3 tons/yr
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(Condition #143 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

134. Emissions from the operation of the Area 8/16 thermal oxidizer, inclusive of the emissions from the Area 7 CRU specified in Condition #156 and the emissions specified in Condition #132, shall not exceed the limits specified below:

Particulate Matter	0.1 lb/hr	0.3 tons/yr
Particulate Matter (PM-10)	0.1 lb/hr	0.3 tons/yr
Particulate Matter (PM-2.5)	0.1 lb/hr	0.3 tons/yr
Nitrogen Oxides (as NO ₂)	3.2 lb/hr	4.4 tons/yr
Carbon Monoxide	11.8 lb/hr	43.9 tons/yr
VOC	8.6 lb/hr	6.1 tons/yr

(Condition #142 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

135. Emissions from the operation of the Area 8/16 modular cooling towers shall not exceed the limits specified below:

Particulate Matter	0.13 lb/hr	0.55 tons/yr
Particulate Matter (PM-10)	0.02 lb/hr	0.08 tons/yr
Particulate Matter (PM-2.5)	0.02 lb/hr	0.08 tons/yr

(Condition #144 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

136. Emissions from the operation of the Area 8/16 Cobalt Catalyst Manufacturing process shall not exceed the limits specified below:

Particulate Matter	0.5 lb/hr	0.025 tons/yr
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(Condition #16 of the 7/6/1979 NSR Permit and 9VAC5-80-110)

137. No owner or other person shall cause or permit to be discharged into the atmosphere from any affected facility any visible emissions which exhibit greater than 20% opacity, except for one six-minute period in any one hour of not more than 30% opacity. Failure to meet the requirements of this section because of the presence of water vapor shall not be a violation of this section.
(9VAC5-50-80 and 9VAC5-80-110)

40 CFR 60 Subpart NNN/RRR Requirements

138. The following Area 8/16 affected facilities subject to 40 CFR 60 Subpart RRR shall be operated in compliance with the requirements of 40 CFR 60.700(c)(4) as specified below:

- a. The Area 8 cyclohexanone oxime rearrangement reactor system shall be operated such that the vent stream flow rate from the process is less than 0.011 scm/min.
(40 CFR 60.700(c)(4), Condition #145 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

139. The following Area 8/16 affected facilities subject to 40 CFR 60 Subpart NNN shall be operated in compliance with the requirements of 40 CFR 60.662(a) as specified below:

- a. As specified in Condition #119, VOC emissions from the CL-15, CL-81, CL-62 and CL-62New shall be controlled by reducing TOC (total organic compounds less methane and ethane) emissions by 98 weight percent, or to a TOC concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen, whichever is more stringent.
(40 CFR 60.662(a) and 9VAC5-80-110)

MON Process Requirements

140. Unless an alternative date is approved by the Administrator, the permittee shall operate any applicable Area 8/16 equipment in compliance with the requirements of 40 CFR 63 Subparts A and FFFF.
(40 CFR 63 Subparts A and FFFF and 9VAC5-80-110)

Monitoring

141. The Area 8/16 thermal oxidizer shall be observed visually at least once each operating month for at least a brief time period to determine which emissions units have any visible emissions (does not include condensed water vapor/steam), unless a 40 CFR 60 Appendix A Method 9 visible emissions evaluation is performed on the emissions unit. Each emissions unit observed having any visible emissions shall be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded.
(9VAC5-80-110)

142. Initial performance tests for VOC from CL-15 and CL-81 shall be conducted using an appropriate EPA Reference Method, approved by the Piedmont Regional Office, to determine that a VOC destruction efficiency of at least 98% on a mass basis consistent with Condition #119 or that a VOC emissions concentration of 20 ppmv, on a dry basis, corrected to 3 percent oxygen is being achieved by the thermal oxidation unit. The tests shall be performed, and demonstrate compliance, within 60 days after achieving the maximum production rate but in no event later than 180 days after start-up of the permitted facility. During the tests, the permittee shall be required to operate all process equipment, exhausted to this unit, at a minimum of 80% of their maximum rated capacity. Tests shall be conducted and reported and data reduced as set forth in 9VAC5-50-30 and 9VAC5-60-30 of the SAPCB Regulations, and the test methods and procedures contained in each applicable section or subpart listed in 9VAC5-50-410 and 9VAC5-60-70. The details of the tests are to be arranged with the Piedmont Regional Office. Three copies of the test results shall be submitted to the Piedmont Regional Office within 45 days after test completion.
(Condition #146 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
143. Initial performance tests for VOC from CL-62 shall be conducted using an appropriate EPA Reference Method, approved by the Piedmont Regional Office, to determine that a VOC destruction efficiency of at least 98% on a mass basis consistent with Condition #119 or that a VOC emissions concentration of 20 ppmv, on a dry basis, corrected to 3 percent oxygen is being achieved by the thermal oxidation unit. The tests shall be performed, and demonstrate compliance, within 60 days after achieving the maximum production rate but in no event later than 180 days after start-up of the permitted facility. During the tests, the permittee shall be required to operate all process equipment, exhausted to this unit, at a minimum of 80% of their maximum rated capacity. Tests shall be conducted and reported and data reduced as set forth in Sections 9VAC5-50-30 and 9VAC5-60-30 of the SAPCB Regulations, and the test methods and procedures contained in each applicable section or subpart listed in Sections 9VAC5-50-410 and 9VAC5-60-70. The details of the tests are to be arranged with the Piedmont Regional Office. Three copies of the test results shall be submitted to the Piedmont Regional Office within 45 days after test completion.
(Condition #147 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
144. Initial performance tests for VOC from CL-62new shall be conducted using an appropriate EPA Reference Method, approved by the Piedmont Regional Office, to determine that a VOC destruction efficiency of at least 98% on a mass basis consistent with Condition #119 or that a VOC emissions concentration of 20 ppmv, on a dry basis, corrected to 3 percent oxygen is being achieved by the thermal oxidation unit. The tests shall be performed, and demonstrate compliance, within 60 days after achieving the maximum production rate but in no event later than 180 days after start-up of the permitted facility. During the tests, the permittee shall be required to operate all process equipment, exhausted to this unit, at a minimum of 80% of their maximum rated capacity. Tests shall be conducted and reported and data reduced as set forth in Sections 9VAC5-50-30 and 9VAC5-60-30 of the SAPCB Regulations, and the test methods and procedures contained in each applicable section or subpart listed in Sections 9VAC5-50-410 and 9VAC5-60-70. The details of the tests are to be arranged with the Piedmont Regional Office. Three copies of the test results shall be submitted to the Piedmont Regional Office within 45 days after test completion.
(Condition #148 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
145. In lieu of performing the initial performance tests described in Conditions #142-144 above, the permittee may apply to the Administrator to waive the requirement for performance testing. In this waiver request, the permittee must demonstrate by means other than these initial performance tests that the affected columns, CL-15, CL-81, CL-62 and CL-62new, are in compliance with 40 CFR 60.662(a). The waiver request shall be submitted to:

Chief, Air Section
Enforcement & Compliance Assurance Division
Air, RCRA and Toxics Branch
US EPA Region 3
1650 Arch Street – 3ED21
Philadelphia, PA 19103

within 60 days of achieving maximum rate but in no circumstances later than 180 days after initial start-up. Copies of the waiver request are to be sent to the Piedmont Regional Office.
(Condition #149 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

146. The permittee shall establish the retention time of the combustion gas in the Area 8/16 thermal oxidizer during the initial testing that achieves the destruction efficiency of 98% on a mass basis. This retention time shall not be lower than 0.5 seconds.
(Condition #150 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
147. During all periods of operation, to include startup and shutdown, the thermal oxidizer firebox chamber temperatures shall be continuously monitored and recorded. Data from the continuous temperature monitor shall be recorded as fifteen minute readings and reduced to 3-hour averages on a rolling basis. A valid 3-hour average shall consist of no less than 90% valid readings. All continuous monitoring devices shall be maintained and calibrated in accordance with the manufacturer's specifications. The continuous temperature monitors shall be calibrated annually and the results of the calibrations recorded. If a monitor fails its calibration check (i.e. calibration error exceeds manufacturer's specifications), the temperature data shall be invalid from the time of the failed calibration check until corrective actions are taken and a successful recalibration is completed.
(40 CFR 60.663(a)(1)(i), Condition #152 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
148. The thermal oxidation unit shall operate at the minimum temperature determined during the most recent performance testing which demonstrated compliance with Condition #119.
(Condition #151 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
149. The permittee shall install, calibrate, maintain and operate a flow indicator that, at least once every 15 minutes, determines whether vent stream flow in any line that bypasses the thermal oxidizer is present. The flow indicator shall be installed at the entrance to any bypass line that could divert the vent stream away from the control device to the atmosphere. Equipment such as low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and pressure relief valves needed for safety purposes are not subject to this condition.
(40 CFR 60.663(a), Conditions #153-154 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Recordkeeping

150. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to the following:

- a. Throughput limitations:
 - i. The annual production of crude caprolactam from the Area 8 cyclohexanone oxime rearrangement reactor system, calculated monthly as the sum of each previous consecutive 12-month period as well as the hourly production rate of crude caprolactam;
 - ii. The combined annual input of oleum and the combined annual input of cyclohexanone oxime to the Area 8 cyclohexanone oxime rearrangement reactor system, calculated monthly as the sum of each previous consecutive 12-month period;
 - iii. The annual input of Area 6 cyclohexanone to Area 8/16 crude caprolactam production, calculated monthly as the sum of each previous consecutive 12-month period;
 - iv. The annual throughput of mixed feed for the equipment specified in Conditions #127-129,
 - v. The yearly throughput of natural gas to the Area 8/16 thermal oxidizer, calculated monthly as the sum of each consecutive 12-month period;
 - vi. The annual production of cobalt catalyst from the Area 8/16 Cobalt Catalyst Manufacturing process, calculated monthly as the sum of each consecutive 12-month period; and
- b. Thermal Oxidizer 40 CFR 60 Subpart NNN records:
 - i. The firebox chamber temperature of the thermal oxidizer maintained as a 3 hour rolling average;
 - ii. All three hour periods of operation, calculated on a rolling average, where the average combustion temperature is more than 50 degrees Fahrenheit below the minimum average combustion temperature demonstrated during the most recent performance test that demonstrated compliance with Condition #119 and an explanation for each such reduction in temperature;
(40 CFR 60.665(c)(1) and Condition #151 of the 2/19/2015 NSR Permit)
 - iii. The total number of times and the length of each occurrence where the thermal oxidizer by-pass line was used; and
 - iv. For CL-15, CL-81, CL-62 and CL-62New during each initial performance test:
 - 1. Records of the average firebox temperature of the thermal oxidizer, measured at least every 15 minutes and averaged over the same time period of the performance test; and
 - 2. Records of the percent reduction of TOC achieved by the thermal oxidizer, or the concentration of TOC (ppmv, by compound) at the outlet of the thermal oxidizer on a dry basis corrected to 3 percent oxygen.
(40 CFR 60.665(b))
 - v. For each flow indicator required by Condition #149, the permittee shall maintain hourly records of whether the flow indicator was operating and whether flow was detected at any time within the

hour as well as records of the times and durations of all periods when the vent stream is diverted from the control device or the monitor is not operating.
(60.665(d) and Condition #153 of the 2/19/2015 NSR Permit)

- c. 40 CFR 60 Subpart RRR records:
 - i. Any changes in the Area 8 cyclohexanone oxime rearrangement reactor system affecting production capacity, feedstock type, or catalyst type, or of any replacement, removal or addition of recovery equipment or reactors;
 - ii. Any performance testing performed on the Area 8 cyclohexanone oxime rearrangement reactor system consistent with 40 CFR 60.704(l)(5); and
 - iii. A record of the initial test for determining the emissions flow rate of the Area 8 cyclohexanone oxime rearrangement reactor system and the results of the initial flow rate calculation.
- d. Visible Emission limit: The results of the monthly visible emission surveys required by Condition #141 and details of any corrective action taken as a result of these inspections.
- e. Emission limits: Emission factors and any other information necessary to demonstrate compliance with the emission limits of Conditions #131-136.
- f. Annual average cooling water total dissolved solids records and design cooling water liquid drift records for the Area 8/16 cooling towers.
- g. The shutdown date for caprolactam extraction column CL-41.
- h. Any records required by the alternate control technology approval allowed by Condition #119.
- i. Maintenance, operations, and training
 - i. Scheduled and unscheduled maintenance records for all process equipment and air pollution control equipment;
 - ii. Inventory of spare parts to minimize durations of air pollution control equipment breakdowns;
 - iii. Written operating procedures for all process equipment and air pollution control equipment; and
 - iv. Operator training records.

These records shall be available for inspection by the DEQ and shall be current for the most recent five (5) years.

(40 CFR 60.663(a) and 60.665, 40 CFR 60.705(h) and 60.705(o), Conditions #151 and #157 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Reporting

- 151. The permittee shall furnish written notification to the Piedmont Regional Office of any change in equipment or process operation that increases the design flow rate of the Area 8 cyclohexanone oxime rearrangement

reactor system above the low flow exemption level in 40 CFR 60.700(c)(3), reported semiannually in accordance with 40 CFR 60.705(l), for the Area 8 cyclohexanone oxime rearrangement reactor system activities. Also, the permittee shall furnish written notification to the Piedmont Regional Office of any temperature exceedances as defined on Condition #148 and any vent stream diversions as defined in Condition #149, reported semiannually in accordance with 40 CFR 60.665(l), for CL-15, CL-81, CL-62 and CL-62New. Copies of written notifications are to be sent to:

Chief, Air Section
Enforcement & Compliance Assurance Division
Air, RCRA and Toxics Branch
US EPA Region 3
1650 Arch Street – 3ED21
Philadelphia, PA 19103

These must be reported as soon as possible after the change and no later than 180 days after the change. The source shall perform testing as defined in 40 CFR 60.705(l)(5).
(40 CFR 60.665(l) and 60.705(l), Condition #155 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

152. The permittee shall furnish written notification to the Piedmont Regional Office of:
- The actual date on which modification of the Area 8 cyclohexanone oxime rearrangement reactor system, CL-15, CL-62 and CL-62new commenced within 10 days after such date.
 - The actual start-up date of the modified Area 8 cyclohexanone oxime rearrangement reactor system, CL-15, CL-62 and CL-62new within 10 days after such date.
 - The anticipated date of performance tests of the modified CL-15, CL-62 and CL-62new postmarked at least thirty (30) days prior to such date.
(Condition #156 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
153. The permittee shall report the results of any 40 CFR Part 60 Appendix A Method 9 opacity test performed as a result of Condition #141. If the test indicates the facility is out of compliance with the standard contained in Condition #137, the source shall also report the length of time associated with any exceedance of the standard and the corrective actions taken to correct the exceedance. This report shall be sent to the Piedmont Regional Office within seven days of the applicable test unless otherwise noted in Condition #460.
(9VAC5-80-110)

AREA 7 - CAPROLACTAM PURIFICATION

Limitations

Control Equipment Requirements

154. Volatile Organic Compound emissions from C-train crystallizers APT-22 and APT-23, D-train crystallizers APT-24 and APT-25, A-train crystallizers APT-39-42, wash water concentrator CL-12, crude caprolactam concentrator CL-21, caprolactam product distillation column CL-70, caprolactam strippers EV-8 and EV-12, caprolactam dryers EV-14-16, caprolactam strippers EV-17 and EV-18, bottoms concentrator VT-36, water stripper VT-220, caprolactam dryer VT-327, wash water concentrator VT-394, and caprolactam strippers VT-395 and VT-799 shall be vented to the Area 7 barometric condenser (C-323).
(Condition #158 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

155. Particulate emissions from the caprolactam remelt facility and the Area 8 flaker #1 (FL-1) shall be vented to a fume scrubber (SC-61). Particulate emissions from the Area 8 flaker #2 (FL-5) shall be vented to a fume scrubber (SC-68). The scrubbers shall maintain a reduction efficiency of 90%.
(Condition #159 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
156. VOC emissions from the Area 7 CRU thin film evaporator (EV-46) and the Area 7 CRU residue recovery tank (VT-966) shall be controlled by venting the emissions through a closed vent system (as defined in 40 CFR 63 Subpart FFFF) to the Area 8/16 thermal oxidizer. The thermal oxidizer shall reduce emissions of VOC by at least 98% by weight.
(Condition #160 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
157. Particulate and hydrogen sulfide emissions from the Area 7 CRU flaker (FL-6) shall be controlled by venting the emissions to a fume scrubber (SE-149). The fume scrubber shall reduce emissions of particulate matter by at least 90% by weight. The fume scrubber shall reduce emissions of hydrogen sulfide by at least 50% by weight.
(Condition #161 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
158. VOC emissions from VT-121, VT-127 and CL-39 shall be controlled by venting the emissions to the Area 9 disulfonate towers. If otherwise allowed by the 2/19/2015 NSR permit or any subsequent amendment thereof, the VOC emissions from VT-121, VT-127 and CL-39 may alternatively be controlled by venting the emissions to a fume scrubber (SE-149).
(Condition #162 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
159. Particulate and VOC emissions from the Area 8 flaker #3 (FL-7) shall be controlled by a water scrubber (APCD-DS).
(Condition #163 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

40 CFR 60 Subpart NNN Requirements

160. The Area 7 barometric condenser (C-323) affected facility shall be operated such that the vent stream shall maintain a Total Resource Effectiveness (TRE) value of greater than 1.0 at all times without the use of VOC emission control equipment. The Area 7 barometric condenser (C-323) affected facility shall consist of the following: C-train crystallizers APT-22 and APT-23, D-train crystallizers APT-24 and APT-25, A-train crystallizers APT-39-42, wash water concentrator CL-12, crude caprolactam concentrator CL-21, caprolactam product distillation column CL-70, caprolactam strippers EV-8 and EV-12, caprolactam dryers EV-14-16, caprolactam strippers EV-17 and EV-18, bottoms concentrator VT-36, water stripper VT-220, caprolactam dryer VT-327, wash water concentrator VT-394, and caprolactam strippers VT-395 and VT-799.
(40 CFR 60.662(c), Condition #174 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
161. The permittee shall operate the Area 7 barometric condenser (C-323) affected facility (as specified in Condition #160) consistent with 40 CFR 60 Subpart NNN.
(40 CFR 60 Subpart NNN, Condition #190 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Throughput Limits

162. The annual input of Area 8/16 crude caprolactam, washwater, regenerated and remelted caprolactam to Area 7 Purified Caprolactam Production shall not exceed 5,793,000 Area 7 production units, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #164 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
163. The annual input of Area 8/16 crude caprolactam to Area 7 Purified Caprolactam Production shall not exceed 5,130,000 Area 7 production units, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #165 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
164. The combined annual input of caprolactam to the caprolactam remelt facility and the Area 8 flaker #1 shall not exceed 960,000 Area 7 production units, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #166 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
165. The annual input of purified caprolactam to CL-70 shall not exceed 4,730,000 Area 7 production units, calculated monthly as the sum of the previous consecutive 12-month period.
(Condition #167 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
166. The annual input of combined regenerated caprolactam and washwater caprolactam to VT-394 and CL-12 shall not exceed 360,400 Area 7 regen/washwater units, calculated monthly as the sum of the previous consecutive 12-month period.
(Condition #168 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
167. The annual input of caprolactam/residue feed to the Area 7 CRU thin film evaporator (EV-46) shall not exceed 840,960 Area 7 production units, calculated monthly as the sum of the previous consecutive 12-month period.
(Condition #169 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
168. The depoly system (VA-19 and CL-39) shall not operate simultaneously with the Area 7 CRU thin film evaporator (EV-46).
(Condition #170 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
169. The annual input of purified liquid caprolactam to the Area 8 Flakers #1-2 (FL-1 and FL-5) shall not exceed 6,150 flaker input units each, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #171 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
170. The Area 8 flaker #3 (FL-7) shall process no more than 9,225 Flaker Input Units per year, calculated monthly as the sum of each consecutive 12-month period.
(Condition #172 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Emission Limitations

171. Emissions from the operation of the Area 7 barometric condenser (C-323) shall not exceed the limits specified below:

VOC	0.3 lb/hr	0.5 tons/yr
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(Condition #175 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

172. Emissions from the combined operation of the caprolactam remelt facility and Area 8 flaker #1, as exhausted through fume scrubber SC-61, shall not exceed the limits specified below:

Particulate Matter	0.2 lb/hr	0.5 tons/yr
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Particulate Matter (PM-10)	0.1 lb/hr	0.3 tons/yr
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Particulate Matter (PM-2.5)	0.1 lb/hr	0.3 tons/yr
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VOC	0.2 lb/hr	0.5 tons/yr
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Emission from the operation of the Area 8 flaker #2, as exhausted through fume scrubber SC-68, shall not exceed the limits specified below:

Particulate Matter	0.1 lb/hr	0.3 tons/yr
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Particulate Matter (PM-10)	0.1 lb/hr	0.2 tons/yr
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Particulate Matter (PM-2.5)	0.1 lb/hr	0.2 tons/yr
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VOC	0.1 lb/hr	0.3 tons/yr
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(Condition #176 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

173. Emissions from the operation of the Area 7 CRU thin film evaporator (EV-46) and the Area 7 CRU residue recovery tank (VT-966), as exhausted through the Area 8/16 thermal oxidizer, shall not exceed the limits specified below:

Hydrogen Sulfide	0.02 lb/hr	0.1 tons/yr
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(Condition #177 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

174. Emissions from the operation of the Area 7 CRU flaker (FL-6), as exhausted through fume scrubber SE-149, shall not exceed the limits specified below:

Particulate Matter	0.2 lb/hr	0.7 tons/yr
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Particulate Matter (PM-10)	0.2 lb/hr	0.7 tons/yr
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Particulate Matter (PM-2.5)	0.2 lb/hr	0.7 tons/yr
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VOC	0.4 lb/hr	2.0 tons/yr
Hydrogen Sulfide	0.4 lb/hr	1.6 tons/yr

(Condition #178 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

175. Emissions from the combined operation of CO-151, VT-121, VT-127 and CL-39 shall not exceed the limits specified below:

VOC	1.6 lb/hr	8.5 tons/yr
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(Condition #176 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

176. Emissions from the operation of the Area 7 cooling tower TW-71 shall not exceed the limits specified below:

Particulate Matter	0.56 lb/hr	2.47 tons/yr
Particulate Matter (PM-10)	0.08 lb/hr	0.37 tons/yr
Particulate Matter (PM-2.5)	0.08 lb/hr	0.37 tons/yr

(Condition #180 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

177. Emissions from the operation of the Area 8 flaker #3 (FL-7), as exhausted from the water scrubber (APCD-DS), shall not exceed the limitations specified below:

Particulate Matter	0.4 lb/hr	1.7 tons/yr
Particulate Matter (PM-10)	0.4 lb/hr	1.7 tons/yr
Particulate Matter (PM-2.5)	0.4 lb/hr	1.7 tons/yr
VOC	0.2 lb/hr	0.8 tons/yr

(Condition #181 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

178. Emissions from the operation of Area 7 Purified Caprolactam Production (inclusive of all emission units specified in the Area 7 section of Condition #2 of this permit) shall not exceed the limits specified below:

Particulate Matter	3.04 lb/hr	12.74 tons/yr
Particulate Matter (PM-10)	2.26 lb/hr	9.87 tons/yr
Particulate Matter (PM-2.5)	2.26 lb/hr	9.87 tons/yr
Nitrogen Oxides (as NO ₂)	1.3 lb/hr	2.7 tons/yr
Carbon Monoxide	1.1 lb/hr	2.1 tons/yr

VOC

26.4 lb/hr

58.54 tons/yr

(Condition #182 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

179. Visible emissions from the Area 8 flaker #3 (FL-7) shall not exceed 10 percent opacity as determined by the EPA Method 9 (reference 40 CFR 60 Appendix A).
(Condition #183 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
180. No owner or other person shall cause or permit to be discharged into the atmosphere from any affected facility any visible emissions which exhibit greater than 20% opacity, except for one six-minute period in any one hour of not more than 30% opacity. Failure to meet the requirements of this section because of the presence of water vapor shall not be a violation of this section.
(9VAC5-50-80 and 9VAC5-80-110)

MON Process Requirements

181. Except where this permit is more restrictive than the applicable requirement, the permittee shall design, construct and operate the Area 7 CRU thin film evaporator (EV-46) and the Area 7 CRU residue recovery tank (VT-966) in compliance with all requirements of 40 CFR 63 Subparts A and FFFF. As specified in 40 CFR 63.2535, for the Area 7 CRU, compliance with the applicable requirements of 40 CFR 63 Subpart FFFF shall also constitute compliance with the applicable requirements of 40 CFR 60 Subpart NNN. The applicable requirements of 40 CFR 63 Subpart FFFF shall include, but are not limited to, the following:
40 CFR 63.2450(b) – determine halogenated vent streams
40 CFR 63.2450(e) – requirements for control devices
40 CFR 63.2450(k) – continuous parameter monitoring
40 CFR 63.2455 – requirements for continuous process vents
40 CFR 63.2520(e)(10) – compliance report (notification of process change)
(40 CFR 63 Subparts A and FFFF, Condition #191 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
182. Unless an alternative date is approved by the Administrator, the permittee shall operate any applicable Area 7 equipment in compliance with the requirements of 40 CFR 63 Subparts A and FFFF.
(40 CFR 63 Subparts A and FFFF and 9VAC5-80-110)

Monitoring

183. The Area 7 caprolactam remelt facility, the Area 8 flakers #1-3 and the Area 7 CRU flaker shall be observed visually at least once each operating month for at least a brief time period to determine which emissions units have any visible emissions (does not include condensed water vapor/steam), unless a 40 CFR 60 Appendix A Method 9 visible emissions evaluation is performed on the emissions unit. Each emissions unit observed having any visible emissions shall be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded.
(9VAC5-80-110)
184. The permittee shall recalculate the TRE index value for the Area 7 barometric condenser affected facility whenever a process change is made to one of the units included in the affected facility (as specified in Condition #160). The TRE index value shall be recalculated based on test data or on best engineering estimates of the effects of the change on the affected facility.
(40 CFR 60.664(g), Condition #187 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

185. Where the TRE value, calculated in accordance with Condition #184, is less than or equal to 1.0, the permittee shall notify DEQ within a week of that determination and shall conduct a performance test consistent with the requirements of the 40 CFR 60.664(f)(1). This performance test shall be conducted as soon as possible but in no case later than 180 days after the process change prompting the recalculation. (40 CFR 60.664(g)(1), Condition #188 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
186. Where the TRE value, calculated in accordance with Condition #184, is less than or equal to 8.0 but greater than 1.0, the permittee shall conduct a performance test consistent with 40 CFR Part 60.664(d)(2). This performance test must be conducted as soon as possible but in no case later than 180 days after the process change prompting the recalculation. (40 CFR 60.664(g)(2), Condition #189 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
187. The permittee shall comply with the monitoring, recordkeeping and reporting requirements for the Area 8/16 thermal oxidizer as specified in Conditions #146-149 during all periods where the Area 7 CRU is in operation. (Condition #192 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
188. During all periods of operation, the Area 7 CRU flaker (FL-6) fume scrubber liquid flow rate shall be continuously monitored and recorded. The caustic/neutralizing agent injection rate shall be continuously monitored and recorded by one or more of the following methods: pump stroke rate, flow measurement or pH. Data from the continuous monitors shall be recorded as fifteen minute readings and reduced to 3-hour averages on a rolling basis. A valid 3-hour average shall consist of no less than 90% valid readings. The continuous monitoring devices shall be maintained and calibrated in accordance with the manufacturer's specifications (at least annually), and the results of the calibrations recorded. (Condition #193 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
189. The Area 7 CRU flaker (FL-6) fume scrubber shall be operated at a minimum scrubber liquid flow rate and a minimum caustic/neutralizing agent injection rate (monitored in accordance with Condition #188) as determined during the most recent performance test approved by the Piedmont Regional Office. At the discretion of the Piedmont Regional Office, these minimum performance test rates may be supplemented by manufacturer's specifications or engineering evaluations. All 3-hour periods of operation calculated on a rolling average, in which the scrubber liquid flow rate or the caustic/neutralizing agent injection rate is below the minimum value established in accordance with this condition, shall be recorded for each day and an explanation provided for the deviation. The permittee shall also implement corrective action as necessary to return the scrubber to proper operation. (Condition #194 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
190. The Area 8 flakers shall be equipped with control system monitoring devices to measure the control system operating parameters as specified below:

Area 8 flaker #1 (FL-1):	Differential Pressure
Area 8 flaker #2 (FL-5):	Differential Pressure
Area 8 flaker #3 (FL-7):	Differential Pressure and Scrubber Liquid Flow (*)

The monitoring devices shall be installed, maintained, calibrated and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. The monitoring devices shall be provided with adequate access for inspection and shall be in operation when their respective control systems are operating. (*) If the 2/19/2015 NSR Permit is

amended to remove scrubber liquid flow as a required parameter, the scrubber liquid flow requirement of this condition shall be deemed void.

(Condition #195 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

191. The Area 8 flaker control systems (SC-61, SC-68 and APCD-DS) shall be operated such that, at all times of required operation, the operating parameters required to be monitored by Condition #190 are within the range specified by the manufacturer's minimum recommendation or at a rate otherwise approved by the Piedmont Regional Office. To ensure good performance, the control system monitoring devices specified in Condition #190 shall be observed by the permittee with a frequency of not less than once per operating shift. The permittee shall keep a log of the observations required by this condition and any related corrective actions.

(Condition #196 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Recordkeeping

192. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to:
- a. The yearly throughput of caprolactam to the Area 7 crystallizers/purification systems, calculated monthly as the sum of each consecutive 12-month period.
 - b. The yearly throughput of washwater/wastewater to the Area 7 washwater System, calculated monthly as the sum of each consecutive 12-month period.
 - c. The yearly throughput of caprolactam to the Area 7 caprolactam product distillation column (CL-70), calculated monthly as the sum of each consecutive 12-month period.
 - d. The yearly throughput of caprolactam to the Area 7 A-train crystallizers (APT-39, 41, 42), calculated monthly as the sum of each consecutive 12-month period.
 - e. The yearly throughput of caprolactam/residue feed to the Area 7 CRU thin film evaporator (EV-46), calculated monthly as the sum of each consecutive 12-month period.
 - f. The combined yearly throughput of caprolactam to the Area 7 remelt facility and Area 8 flaker #1, calculated monthly as the sum of each consecutive 12-month period.
 - g. The yearly throughput of caprolactam to the Area 8 flakers #1-2, each calculated monthly as the sum of each consecutive 12-month period.
 - h. Monthly and annual production of flaked caprolactam from the Area 8 flaker #3, annual throughput shall be calculated monthly as the sum of each consecutive 12-month period.
 - i. Operating records for the depoly and CRU systems sufficient to demonstrate compliance with Condition #168.
 - j. The yearly emissions of VOC from the Area 7 barometric condenser (C-323), calculated monthly as the sum of each consecutive 12-month period.

- k. Emission factors and any other information necessary to demonstrate compliance with the emission limits of Conditions #171-178.
- l. The initial test for determining the VOC emissions from the Area 7 barometric condenser (C-323) and the results of the test.
- m. The initial test for determining the TRE index value of the Area 7 barometric condenser (C-323) affected facility (as specified in Condition #160) and the results of the initial TRE index value calculation.
- n. Any process change to the Area 7 barometric condenser (C-323) affected facility (as specified in Condition #160) which prompts recalculation of the TRE.
- o. Any recalculation of the TRE index value for the Area 7 barometric condenser (C-323) affected facility (as specified in Condition #160) performed pursuant to 40 CFR 60.664(d).
- p. Records of any performance test performed as a result of recalculation of the TRE value for the Area 7 barometric condenser (C-323) affected facility (as specified in Condition #160).
- q. The results of the monthly visible emission surveys required by Condition #183 and details of any corrective action taken as a result of these inspections.
- r. Records of the initial performance tests for the Area 7 CRU thin film evaporator (EV-46) and the Area 7 CRU residue recovery tank (VT-966), the Area 7 CRU flaker (FL-6) and the Area 8 flaker #3 (FL-7).
- s. Records of the monitoring data, calibration checks, deviations and corrective actions required by Conditions #187-191.
- t. The shutdown date for purge tower CL-22.
- u. Annual average cooling water total dissolved solids records and design cooling water liquid drift records for the Area 7 cooling tower TW-71.
- v. Scheduled and unscheduled maintenance records for all process equipment and air pollution control equipment.
- w. Inventory of spare parts to minimize durations of air pollution control equipment breakdowns.
- x. Written operating procedures for all process equipment and air pollution control equipment.
- y. Operator training records.

These records shall be available for inspection by the DEQ and shall be current for the most recent five (5) years.

(40 CFR 60.665(h), Condition #202 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Reporting

193. The permittee shall furnish written notification to the Piedmont Regional Office of any recalculation of the TRE index value, reported semiannually in accordance with 40 CFR 60.665(h), for the Area 7 barometric condenser affected facility (as specified in Condition #160). Copies of written notifications are to be sent to:

Chief, Air Section
Enforcement & Compliance Assurance Division
Air, RCRA and Toxics Branch
US EPA Region 3
1650 Arch Street – 3ED21
Philadelphia, PA 19103

(40 CFR 60.665(l)(7), Condition #197 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

194. Where the TRE value, calculated in accordance with Condition #184, is less than or equal to 1.0, the permittee shall notify the Piedmont Regional Office, within a week of that determination. Copies of written notifications are to be sent to:

Chief, Air Section
Enforcement & Compliance Assurance Division
Air, RCRA and Toxics Branch
US EPA Region 3
1650 Arch Street – 3ED21
Philadelphia, PA 19103

(40 CFR 60.664(g)(1), Condition #188 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

195. The permittee shall furnish written notification to the Piedmont Regional Office of:
- The actual date on which modification of the crystallizers/purification systems (APT-22, 23, 24, and 25), the wash water concentrators (CL-12 and VT-394), and the Area 7 barometric condenser (C-323) commenced within 10 days after such date.
 - The actual start-up date of the crystallizers/purification systems (APT-22, 23, 24, and 25), the wash water concentrators (CL-12 and VT-394), and the Area 7 barometric condenser (C-323) within 10 days after such date.
 - Copies of written notifications are to be sent to:

Chief, Air Section
Enforcement & Compliance Assurance Division
Air, RCRA and Toxics Branch
US EPA Region 3
1650 Arch Street – 3ED21
Philadelphia, PA 19103

(40 CFR 60.7 and 60.8, Conditions #198, #199 and #201 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

196. The permittee shall report the results of any 40 CFR Part 60 Appendix A Method 9 opacity test performed as a result of Condition #183. If the test indicates the facility is out of compliance with an applicable standard contained in Conditions #179 or #180, the source shall also report the length of time associated with any exceedance of the standard and the corrective actions taken to correct the exceedance. This report shall be sent to the Piedmont Regional Office within seven days of the applicable test unless otherwise noted in Condition #460.
(9VAC5-80-110)

AREA 11 - AMMONIUM SULFATE PRODUCTION

Limitations

Control Equipment Requirements

197. Particulate emissions from the rotary dryer, RD-3, shall be controlled by a Ducon wet scrubber (DC-7). The liquid flow to the scrubber shall be maintained at all times.
(Condition #203 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
198. Particulate emissions from the rotary dryer, RD-4, shall be controlled by a CGS Dynascrubber wet scrubber/mist eliminator (DC-11). The liquid flow to the scrubber shall be maintained at all times. The scrubber shall maintain a minimum control efficiency of 99%.
(Condition #204 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
199. Particulate emissions from the rotary dryer, RD-6, shall be controlled by a mechanical scrubber/mist eliminator (DC-12). The liquid flow to the scrubber shall be maintained at all times. The scrubber shall maintain a minimum control efficiency of 99%.
(Condition #205 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
200. Particulate emissions from the rotary dryer, RD-7, shall be controlled by a Ducon wet scrubber (DC-29).
(Condition #206 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
201. Particulate emissions from the Area 11 centrifuges shall be controlled by a Ducon wet cyclone scrubber (DC-25). The liquid flow to the scrubber shall be maintained at all times.
(Condition #207 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
202. Particulate emissions from the Building 12 ammonium sulfate storage and loading operation, the three (3) triple deck screens and the mid-grade conveyor (SC-65, SC-66, SC-67, CO-225) shall be controlled by a wet scrubber (DC-21). The liquid flow to the scrubber shall be maintained at all times.
(Condition #209 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
203. Particulate emissions from the Building 12 ammonium sulfate storage and loading operation, the ammonium sulfate bulk storage bin/loading station, the bulk storage bin conveyor and the bulk storage bin elevator (EL-25) shall be controlled by a baghouse (DC-31). The baghouse shall have a particulate removal efficiency of at least 99%.
(Condition #210 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
204. Fugitive particulate emissions from the ammonium sulfate handling and loading operation shall be controlled by the application of Dustrol anti-caking agent (or equivalent) at all times, except for periods of maintenance, malfunction, and product quality adjustment, however, this downtime period shall not exceed

10% of the ammonium sulfate handling and loading operation's operating schedule. The Dustrol anti-caking agent (or equivalent) shall have a particulate emission reduction efficiency of at least 50%.
(Condition #211 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

205. Particulate emissions from the ammonium sulfate handling and loading operation (ship/barge loading) shall be controlled by an enclosed drop loading chute (or equivalent as approved by the Piedmont Regional Office). The enclosed drop loading chute (or equivalent as approved by the Piedmont Regional Office) shall have a particulate emission reduction efficiency of at least 90% for ship/barge loading. Compliance with this condition shall be determined as specified in Conditions #233 and #244-245.
(Condition #212 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
206. Particulate emissions from all Area 11 modular cooling towers shall be controlled by limiting the total dissolved solids of the cooling water to 2,500 parts per million as an annual average (12-month rolling basis) and limiting each cooling tower's liquid drift to 0.001% or less.
(Condition #213 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Throughput Limits

207. The annual input of aqueous ammonium sulfate solution from Area 8/16 Crude Caprolactam Production and other sources to Area 11 Ammonium Sulfate Production shall not exceed 35,340 Area 11 production units (as ammonium sulfate product), calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #214 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
208. The annual input of ammonium sulfate to RD-4 shall not exceed 16,302 Area 11 production units, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #215 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
209. The annual input of ammonium sulfate to RD-6 shall not exceed 11,913 Area 11 production units, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #216 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
210. The annual input of standard ammonium sulfate to the Building 12 ammonium sulfate screening and storage operation shall not exceed 39,615 Area 11 production units, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #218 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
211. The annual input of ammonium sulfate to the ammonium sulfate handling and loading operation shall not exceed 265,950 Area 11 loading units of combined (all grades) product ammonium sulfate, calculated monthly as the sum of each previous consecutive 12-month period. The annual input of ammonium sulfate to the ship/barge section of the ammonium sulfate handling and loading operation shall not exceed 166,066 Area 11 loading units of combined (all grades) product ammonium sulfate, calculated monthly as the sum of each previous consecutive 12-month period.
(Condition #219 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
212. The annual input of standard ammonium sulfate to the ammonium sulfate handling and loading operation shall not exceed 137,176 Area 11 loading units, calculated monthly as the sum of each previous consecutive 12-month period. The annual input of standard ammonium sulfate to the ship/barge section of the

ammonium sulfate handling and loading operation shall not exceed 103,426 Area 11 loading units, calculated monthly as the sum of each previous consecutive 12-month period.
 (Condition #220 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

213. The permittee shall not load back any quantity of ammonia sulfate (all grades) from Building 40 to Building 12.
 Condition #221 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Emission Limitations

214. Emissions from the operation of the Area 11 ammonium sulfate dryer designated RD-4 shall not exceed 0.3 pounds of particulate matter per ton of ammonium sulfate produced.
 (40 CFR 60.422, Condition #222 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

215. Emissions from the operation of the Area 11 ammonium sulfate dryer designated RD-6 shall not exceed 0.3 pounds of particulate matter per ton of ammonium sulfate produced.
 (40 CFR 60.422, Condition #223 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

216. Emissions from the operation of the Area 11 ammonium sulfate dryer designated RD-3 shall not individually exceed the limits specified below:

Nitrogen Oxides (as NO ₂)	0.5 lb/hr	2.0 tons/yr
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(Condition #225 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

217. Emissions from the operation of the Area 11 ammonium sulfate dryer designated RD-4 shall not individually exceed the limits specified below:

Particulate Matter	9.6 lb/hr	42.9 tons/yr
Particulate Matter (PM-10)	4.8 lb/hr	21.5 tons/yr
Nitrogen Oxides (as NO ₂)	1.5 lb/hr	6.7 tons/yr
VOC	5.7 lb/hr	24.4 tons/yr

(Condition #226 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

218. Emissions from the operation of the Area 11 ammonium sulfate dryers designated RD-6 shall not individually exceed the limits specified below:

Particulate Matter	7.0 lb/hr	31.4 tons/yr
Particulate Matter (PM-10)	3.5 lb/hr	15.7 tons/yr
Nitrogen Oxides (as NO ₂)	0.5 lb/hr	2.1 tons/yr
VOC	4.1 lb/hr	17.8 tons/yr

(Condition #227 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

219. Emissions from the operation of the Area 11 ammonium sulfate dryer designated RD-7 shall not individually exceed the limits specified below:

Nitrogen Oxides (as NO ₂)	0.85 lb/hr	3.72 tons/yr
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(Condition #228 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

220. Regardless of the emission limits imposed by Conditions #216-219 of this permit, total emissions from the operation of the Area 11 ammonium sulfate dryers designated RD-3, RD-4, RD-6, and RD-7 shall not exceed the limits specified below:

Particulate Matter	29.3 lb/hr	107.3 tons/yr
Particulate Matter (PM-10)	14.7 lb/hr	53.7 tons/yr
Particulate Matter (PM-2.5)	1.5 lb/hr	5.4 tons/yr
Carbon Monoxide	0.8 lb/hr	2.4 tons/yr
Nitrogen Oxides (as NO ₂)	3.4 lb/hr	11.4 tons/yr
VOC	17.4 lb/hr	51.7 tons/yr

(Condition #229 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

221. Emissions from the operation of the Building 12 ammonium sulfate screening and storage operation, as exhausted through DC-21, shall not exceed the limits specified below:

Particulate Matter	2.2 lb/hr	7.3 tons/yr
Particulate Matter (PM-10)	2.2 lb/hr	7.3 tons/yr
Particulate Matter (PM-2.5)	0.2 lb/hr	0.7 tons/yr

(Condition #230 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

222. Emissions from the operation of the Building 12 ammonium sulfate screening and storage operation, as exhausted through DC-31, shall not exceed the limits specified below:

Particulate Matter	1.4 lb/hr	4.8 tons/yr
Particulate Matter (PM-10)	1.4 lb/hr	4.8 tons/yr
Particulate Matter (PM-2.5)	1.4 lb/hr	4.8 tons/yr

(Condition #231 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

223. Fugitive emissions from the operation of the Building 12 ammonium sulfate screening and storage operation shall not exceed the limits specified below:

Particulate Matter	2.5 lb/hr	8.4 tons/yr
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Particulate Matter (PM-10)	1.3 lb/hr	4.2 tons/yr
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Particulate Matter (PM-2.5)	1.3 lb/hr	4.2 tons/yr
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(Condition #232 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

224. Fugitive emissions from the operation of the ammonium sulfate handling and loading operation shall not exceed the limits specified below:

Particulate Matter	170.2 lb/hr	90.8 tons/yr
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Particulate Matter (PM-10)	85.6 lb/hr	45.4 tons/yr
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Particulate Matter (PM-2.5)	12.8 lb/hr	6.8 tons/yr
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(Condition #233 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

225. Emissions from the operation of the Area 11 centrifuges, as exhausted through DC-25, shall not exceed the limits specified below:

Particulate Matter	0.35 lb/hr	1.2 tons/yr
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Particulate Matter (PM-10)	0.35 lb/hr	1.2 tons/yr
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Particulate Matter (PM-2.5)	0.1 lb/hr	0.2 tons/yr
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VOC	2.7 lb/hr	9.0 tons/yr
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(Condition #234 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

226. Emissions from the operation of all Area 11 modular cooling towers shall not exceed the limits specified below:

Particulate Matter	0.1 lb/hr	0.4 tons/yr
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Particulate Matter (PM-10)	0.1 lb/hr	0.4 tons/yr
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Particulate Matter (PM-2.5)	0.1 lb/hr	0.4 tons/yr
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(Condition #235 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

227. Emissions from the operation of Area 11 Ammonium Sulfate Production (inclusive of all emission units specified in the Area 11 section of Condition #2 of the 2/19/2015 NSR Permit) shall not exceed the limits specified below:

VOC	30.0 lb/hr	66.1 tons/yr
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(Condition #236 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

228. Visible Emissions from the Area 11 ammonium sulfate dryer RD-4 shall not exceed 15 percent opacity as determined by EPA Method 9 (reference 40 CFR Part 60 Appendix A).
(40 CFR 60.422, Condition #237 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
229. Visible Emissions from the Area 11 ammonium sulfate dryer RD-6 shall not exceed 15 percent opacity as determined by EPA Method 9 (reference 40 CFR Part 60 Appendix A).
(40 CFR 60.422, Condition #238 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
230. Visible emissions from the operation of the Building 12 ammonium sulfate screening and storage operation, as exhausted through DC-21, shall not exceed 20 percent opacity except for one six-minute period in any one hour of not more than 60 percent opacity as determined by EPA Method 9 (reference 40 CFR 60 Appendix A).
(Condition #240 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
231. Visible emissions from the operation of the Building 12 ammonium sulfate screening and storage operation, as exhausted through DC-31, shall not exceed 20 percent opacity except for one six-minute period in any one hour of not more than 30 percent opacity as determined by EPA Method 9 (reference 40 CFR 60 Appendix A).
(Condition #241 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
232. Visible emissions from the operation of the Area 11 centrifuges, as exhausted through DC-25, shall not exceed 20 percent opacity except for one six-minute period in any one hour of not more than 30 percent opacity as determined by EPA Method 9 (reference 40 CFR 60 Appendix A).
(Condition #242 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
233. Visible emissions from the operation of the ammonium sulfate handling and loading operation (ship/barge loading) shall not exceed 10 percent opacity as determined by EPA Method 9 (reference 40 CFR 60 Appendix A).
(Condition #243 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
234. Excluding the equipment referenced in Conditions #228-233, no owner or other person shall cause or permit to be discharged into the atmosphere from any affected facility any visible emissions which exhibit greater than 20% opacity, except for one six-minute period in any one hour of not more than 30% opacity. Failure to meet the requirements of this section because of the presence of water vapor shall not be a violation of this section.
(9VAC5-50-80 and 9VAC5-80-110)

Monitoring

235. The permittee shall maintain devices which measure the scrubber liquid flow rate and the total pressure drop across the Ducon wet scrubber (DC-7) controlling emissions from the rotary dryer RD-3.
(Condition #203 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
236. The permittee shall install, calibrate and maintain monitoring devices which continuously measure and permanently record the scrubber liquid flow rate for the wet scrubber and the total pressure drop across the scrubber/mist eliminator (DC-11) controlling emissions from the rotary dryer, RD-4. The permittee shall maintain the total pressure drop and the scrubber liquid flow rate for DC-11 necessary to demonstrate compliance with the requirements of Condition #198.
(40 CFR 60.423(b), Condition #204 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
237. The permittee shall install, calibrate and maintain monitoring devices which continuously measure and permanently record the scrubber liquid flow rate and the total pressure drop across the Mechanical scrubber/mist eliminator (DC-12) controlling emissions from the rotary dryer, RD-6. The permittee shall maintain the total pressure drop and the scrubber liquid flow rate for DC-12 necessary to demonstrate compliance with the requirements of Condition #199.
(40 CFR 60.423(b), Condition #205 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
238. The permittee shall maintain devices which measure the scrubber liquid flow rate and the total pressure drop across the wet scrubber (DC-29) controlling emissions from the rotary dryer, RD-7.
(Condition #206 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
239. The permittee shall install, calibrate and maintain monitoring devices which continuously measure and permanently record the scrubber liquid flow rate and the total pressure drop across the wet cyclone scrubber (DC-25) controlling emissions from the Area 11 centrifuges, DC-25.
(Condition #207 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
240. The permittee shall install, calibrate, maintain and operate a flow monitoring device or weight scale that can be used to determine the mass flow rate of the ammonium sulfate production from the dryer process. The monitoring device will have an accuracy of plus or minus five percent (+5%) over its range. The device will be provided with adequate access for inspection and shall be in operation when the process is operating.
(40 CFR 60.423(a), Condition #208 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
241. The permittee shall install, calibrate and maintain monitoring devices which continuously measure the scrubber liquid flow rate and the total pressure drop across the wet scrubber (DC-21) controlling emissions from the Building 12 ammonium sulfate screening and storage operation, the three (3) triple deck screens and the mid-grade conveyor (SC-65, SC-66, SC-67, CO-225).
(Condition #209 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
242. The permittee shall maintain a device to continuously monitor the differential pressure across the baghouse controlling emissions from the Building 12 ammonium sulfate storage and loading operation, the ammonium sulfate bulk storage bin/loading station, the bulk storage bin conveyor and the bulk storage bin elevator (EL-25).
(Condition #210 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

243. The permittee shall monitor and record the amount of Dustrol anti-caking agent (or equivalent) applied to demonstrate compliance with the control requirements of Condition #204.
(9VAC5-80-110)
244. The permittee shall visually observe the ammonium sulfate handling and loading operation (ship/barge loading) at least once each operating week for at least a brief time period to determine compliance with the visible emission standard of Condition #233 (does not include condensed water vapor/steam), unless a 40 CFR 60 Appendix A Method 9 visible emissions evaluation is performed on the emissions unit. Each observation indicating visible emissions in excess of the Condition #233 visible emission standards shall be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded. After 12 months of operation, the permittee may reduce the frequency of the visible emission observations to once per operating month if compliance has been regularly demonstrated and if approved by the Piedmont Regional Office.
(Condition #247 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
245. The permittee shall maintain a log of each ammonium sulfate handling and loading operation (ship/barge loading) loading event including verification that the enclosed drop loading chute (or equivalent) is installed and in good condition prior to each loading event.
(Condition #248 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
246. Ammonium Sulfate dryers RD-3, RD-4, RD-6 and RD-7 and emission points DC-21, DC-25 and DC-31 shall be observed visually at least once each operating month for at least a brief time period to determine which emissions units have normal visible emissions (does not include condensed water vapor/steam), unless a 40 CFR 60 Appendix A Method 9 visible emissions evaluation is performed on the emissions unit. Each emissions unit observed having above normal visible emissions shall be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded.
(9VAC5-80-110)

Recordkeeping

247. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to:
- a. The annual production of standard, granular and total ammonium sulfate, calculated monthly as the sum of each previous consecutive 12-month period.
 - b. The annual throughput of ammonium sulfate for each operation subject a throughput limit in Conditions #207-212, calculated monthly as the sum of each previous consecutive 12-month period.
 - c. The maximum hourly production capacity of ammonium sulfate through each dryer.
 - d. The combined annual natural gas usage, in thousands of standard cubic feet, by the ammonium sulfate dryers, calculated monthly as the sum of each previous consecutive 12-month period.
 - e. Emission factors and any other information necessary to demonstrate compliance with the emission limits of Conditions #216-227.

- f. Copies of all initial performance tests performed on RD-4, RD-6, DC-25, and DC-31. Copies of all Visible Emissions Evaluations performed on each of these units. Copies of notifications of the begin actual construction date for modifications performed on EV-9, EV-26, and EV-29.
- g. The annual percentage of time that the Dustrol (or equivalent) anti-caking agent application system was in operation, calculated monthly as the sum of each previous consecutive 12-month period.
- h. The results of the monthly visible emission surveys required by Condition #246 and details of any corrective action taken as a result of these inspections.
- i. Annual average cooling water total dissolved solids records and design cooling water liquid drift records for the Area 11 modular cooling towers.
- j. Records of the visible emission observations, visible emission evaluations and corrective actions required by Conditions #244.
- k. Records of each ammonium sulfate handling and loading operation (ship/barge loading) loading event and enclosed drop loading chute (or equivalent) inspections required by Condition #245.
- l. Scheduled and unscheduled maintenance records for all process equipment and air pollution control equipment.
- m. Inventory of spare parts to minimize durations of air pollution control equipment breakdowns.
- n. Written operating procedures for all process equipment and air pollution control equipment.
- o. Operator training records.

These records shall be available for inspection by the DEQ and shall be current for the most recent five (5) years.

(Condition #250 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Reporting

- 248. The permittee shall report the results of any 40 CFR Part 60 Appendix A Method 9 opacity test performed as a result of Conditions #244 or #246. If the test indicates the facility is out of compliance with any standard contained in Conditions #228-234, the source shall also report the length of time associated with any exceedance of the standard and the corrective actions taken to correct the exceedance. This report shall be sent to the Piedmont Regional Office within seven days of the applicable test unless otherwise noted in Condition #460.
(9VAC5-80-110)

SULFURIC ACID PLANT (SAP)

Limitations

Control Equipment Requirements

249. Sulfur dioxide emissions from the SAP shall be controlled by the sulfite scrubber (TW-38). The permittee shall operate the sulfite scrubber in a manner consistent with the emission limits in Condition #261. (Condition #251 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
250. Particulate emissions from the SAP shall be controlled by the Brinks mist eliminator. (Condition #252 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
251. Sulfur dioxide emissions from the acid storage tank (VT-439) shall be controlled by a scrubber (CL-71). CL-71 shall be equipped with a device to continuously monitor its scrubber liquid flow rate. (Condition #253 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Throughput Limits

252. The annual input of sulfur to the Sulfuric Acid Plant (SAP) shall not exceed 1,600.0 sulfuric acid production input units, calculated monthly as the sum of each previous consecutive 12-month period. (Condition #254 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
253. The annual throughput of acid to the acid storage tank (VT-439) shall not exceed 90,000 SAP tank units, calculated monthly as the sum of each previous consecutive 12-month period. (Condition #255 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Emission Limitations

254. The emission rate of sulfur dioxide from the operation of the SAP shall not exceed a mass emission rate of 4 pounds per ton of 100% sulfuric acid produced, calculated as a rolling 3-hour average. (40 CFR 60.82, Condition #256 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
255. The emission rate of sulfur dioxide from the operation of the SAP shall not exceed a mass emission rate of 2.0 pounds per ton of 100% sulfuric acid produced. Compliance with this Condition shall be determined by the CEMS required by Condition #266 as a rolling 12-month average. (Condition #257 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
256. The emission rate of sulfuric acid mist from the SAP shall not exceed 0.15 pounds per ton of 100% sulfuric acid produced. (40 CFR 60.83(a)(1), Condition #258 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
257. Visible Emissions from the SAP shall not exceed ten percent (10%) opacity as determined by EPA Method 9. (Reference: 40 CFR, Part 60, Appendix A) (40 CFR 60.83(a)(2), Condition #259 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
258. Visible emissions from each sulfur storage tank (VT-436, VT-441, VT-442 and VT-443) shall not exceed 10 percent opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A). (Condition #260 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

259. Emissions from the operation of the SAP (Stack ID #SK-1) shall not exceed the limits specified below:

Particulate Matter	2.2 lb/hr	8.2 tons/yr
Particulate Matter (PM-10)	7.2 lb/hr	30.1 tons/yr
Particulate Matter (PM-2.5)	7.2 lb/hr	30.1 tons/yr
Sulfuric Acid Mist	2.2 lb/hr	8.2 tons/yr
Sulfur Dioxide	264.0 lb/hr	200.0 tons/yr

(Condition #261 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

260. Emissions from the operation of the VT-439, as exhausted through CL-71, shall not exceed the limits specified below:

Sulfur Dioxide	0.24 lb/hr	1.07 tons/yr
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(Condition #262 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Monitoring

261. The permittee shall visually observe the SAP (Stack ID #SK-1) and each sulfur storage tank (VT-436, VT-441, VT-442 and VT-443) at least once each operating month for at least a brief time period to determine compliance with the visible emission standards of Conditions #257-258 (does not include condensed water vapor/steam), unless a 40 CFR 60 Appendix A Method 9 visible emissions evaluation is performed on an emissions unit. Each observation indicating visible emissions in excess of a visible emission standard shall be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded.

(Condition #265 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

262. The permittee shall install, calibrate, maintain and operate a continuous emission monitoring and recording system (CEMS) for the purpose of continuously monitoring sulfur dioxide emissions from the SAP (Stack ID #SK-1). The sulfur dioxide CEMS shall meet the requirements of 40 CFR 60.84(a) and 40 CFR 60 Appendix F. The permittee shall establish a conversion factor for the purpose of converting the monitoring data into the units required by Condition #254. The conversion factor shall be determined, as a minimum, three times daily in accordance with the procedures of 40 CFR 60.84(b).

(40 CFR 60.84, Condition #266 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

263. The Brinks mist eliminator (SE-105) used to control particulate emissions from the SAP shall be equipped with a device to continuously measure the differential pressure through the mist eliminator. During all periods of operation, the mist eliminator SE-105 differential pressure shall be continuously monitored and recorded. Data from the continuous monitor shall be recorded as fifteen minute readings and reduced to 3-hour averages on a rolling basis. A valid 3-hour average shall consist of no less than 90% valid readings.

The continuous monitoring device shall be maintained and calibrated in accordance with the manufacturer's specifications (at least annually), and the results of the calibrations recorded.
(Condition #268 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

264. The Brinks mist eliminator (SE-105) shall operate at a minimum differential pressure as determined during the most recent performance test approved by the Piedmont Regional Office. At the discretion of the Piedmont Regional Office, the minimum performance test rate may be supplemented by manufacturer's specifications or engineering evaluations. All 3-hour periods of operation calculated on a rolling average, in which the mist eliminator differential pressure is below the minimum value established in accordance with this condition, shall be recorded for each day and an explanation provided for the deviation. The permittee shall also implement corrective action as necessary to return the mist eliminator to proper operation.
(Condition #269 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Recordkeeping

265. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to:
- a. The annual input of sulfur to the SAP, calculated monthly as the sum of each previous consecutive 12-month period.
 - b. The annual production of sulfuric acid from the SAP, calculated monthly as the sum of each previous consecutive 12-month period.
 - c. The annual throughput of acid to the acid storage tank (VT-439), calculated monthly as the sum of each previous consecutive 12-month period.
 - d. Records of all conversion factors required by Condition #262 and the values from which they were computed.
 - e. Emission factors, CEMS data and any other information necessary to demonstrate compliance with the emission limits of Conditions #259-260.
 - f. The results of all initial performance tests and visible emission evaluations.
 - g. Records of the monitoring data, calibration checks, deviations and corrective actions required by Conditions #263-264.
 - h. Records of the visible emission observations, visible emission evaluations and corrective actions required by Condition #261.

These records shall be available for inspection by the DEQ and shall be current for the most recent five (5) years.
(40 CFR 60.84(c), Condition #271 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Reporting

266. The permittee shall submit excess emission reports for the CEMS required by Condition #262 to the Piedmont Regional Office within 30 days after the end of each calendar quarter. The periods of excess emissions are defined as any 3-hour period (or arithmetic average of three consecutive one-hour periods) where the integrated average sulfur dioxide emissions exceeds the standard defined in Condition #254. Each quarterly excess emission report shall contain, at a minimum, the dates included in the calendar quarter and the following (additional details of the quarterly reports are to be arranged with the Piedmont Regional Office):
- A statement of the specific times when the 3-hour rolling average exceed the standard for SO₂, the actual average at the time of the exceedance and the cause for the excess emissions.
 - A log of the CEMS downtime containing the date the monitor is unavailable, the beginning and ending times of the monitor downtime, a description of the problem, cause of the problem and the necessary corrective action to bring the monitor back into service.
 - The date and results of the last Relative Accuracy Test Audit or Cylinder Gas Audit.
 - A log of CEMS performance.
 - The number of hours the SAP plant operated during the quarter.

At a minimum, all one hour averages shall be available on site at all times and shall be accessible for inspection by DEQ and shall be current for the most recent five (5) years.
(Condition #267 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

267. The permittee shall report the results of any 40 CFR Part 60 Appendix A Method 9 opacity test performed as a result of Condition #261. If the test indicates the facility is out of compliance with a standard contained in Conditions #257 or #258, the source shall also report the length of time associated with any exceedance of the standard and the corrective actions taken to correct the exceedance. This report shall be sent to the Piedmont Regional Office within seven days of the applicable test unless otherwise noted in Condition #460.
(9VAC5-80-110)

KELLOGG AMMONIA PLANT

Limitations

Control Equipment Requirements

268. Nitrogen oxide emissions from the Kellogg primary reformer (FU-1) shall be controlled by operation of compressor GC-11 such that the low pressure purge from the ammonia synthesis loop is recovered to the Cryogenics Unit in Area 6. The low pressure purge flow to the Cryogenics Unit shall be maintained at all times, except during start-up, shutdown, or malfunction.
(Condition #272 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
269. The Kellogg primary reformer shall be operated at all times with compressor GC-11 operating except during periods of start-up, shutdown or malfunction.
(Condition #273 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Throughput Limits

270. The annual input of natural gas and Area-6 recovered gas as fuel to the M. W. Kellogg Ammonia Plant shall not exceed 607,560 Kellogg gas input units (based on 1000 BTU per standard cubic feet), calculated monthly as the sum of each previous consecutive 12-month period. The annual input of landfill gas as fuel to the M. W. Kellogg Ammonia Plant shall not exceed 196,391 Kellogg gas input units (based on 526 BTU per standard cubic feet), calculated monthly as the sum of each previous consecutive 12-month period. The total heat input to the M. W. Kellogg Ammonia Plant from all fuels shall not exceed 812,250 Kellogg heat input units per year, calculated monthly as the sum of each previous consecutive 12-month period.
 (Condition #274 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
271. The annual input of natural gas as a reactant for use in the ammonia production process at the M. W. Kellogg Ammonia Plant shall not exceed 1,070,700 Kellogg gas input units (based on 1000 BTU per standard cubic feet), calculated monthly as the sum of each previous consecutive 12-month period.
 (Condition #275 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
272. The annual emission rate of vented gas from VT-418, the carbon dioxide vent from the carbon dioxide scrubber towers in the M. W. Kellogg Ammonia Plant shall not exceed 100,575 Kellogg gas units per year, calculated monthly as the sum of each previous consecutive 12-month period.
 (Condition #276 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Emission Limitations

273. Emissions from the operation of the Kellogg primary reformer (FU-1) shall not exceed the limits specified below:

Particulate Matter	11.7 lb/hr	45.8 tons/yr
Particulate Matter (PM-10)	11.7 lb/hr	45.8 tons/yr
Sulfur Dioxide	2.6 lb/hr	11.2 tons/yr
Nitrogen Oxides (as NO ₂)	517.0 lb/hr	552.6 tons/yr
Carbon Monoxide	38.3 lb/hr	146.0 tons/yr
VOC	1.3 lb/hr	5.2 tons/yr
Hydrogen Chloride	1.1 lb/hr	4.6 tons/yr

(Condition #277 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

274. Emissions from the operation of the Kellogg primary reformer cooling tower (CLT-1) shall not exceed the limits specified below:

Particulate Matter	0.6 lb/hr	2.7 tons/yr
Particulate Matter (PM-10)	0.6 lb/hr	2.7 tons/yr

(Condition #277 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

275. Emissions from the operation of the carbon dioxide vent from the carbon dioxide stripper (VT-418) shall not exceed the limits specified below:

Carbon Monoxide	29.6 lb/hr	99.0 tons/yr
VOC	13.5 lb/hr	41.1 tons/yr
Methanol	13.5 lb/hr	41.1 tons/yr

(Condition #278 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

276. Emissions from the operation of the Kellogg desulfurization drum (CD-1) shall not exceed the limits specified below:

Carbon Monoxide	6600.0 lb/hr
VOC	3450.0 lb/hr

(Condition #279 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

277. Combined emissions from the operation of the Kellogg condensate collection vents (VT-882 and HT-241) shall not exceed the limits specified below:

VOC	0.9 lb/hr	3.3 tons/yr
Methanol	0.9 lb/hr	3.3 tons/yr

(Condition #280 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

278. No owner or other person shall cause or permit to be discharged into the atmosphere from any affected facility any visible emissions which exhibit greater than 20% opacity, except for one six minute period in any one hour of not more than 30% opacity. Failure to meet the requirements of this section because of the presence of water vapor shall not be a violation of this section.
 (9VAC5-50-80 and 9VAC5-80-110)

Monitoring

279. The Kellogg primary reformer FU-1 shall be observed visually at least once each operating month for at least a brief time period to determine which emissions units have normal visible emissions (does not include condensed water vapor/steam), unless a 40 CFR 60 Appendix A Method 9 visible emissions evaluation is performed on the emissions unit. Each emissions unit observed having above normal visible emissions shall be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded.
 (9VAC5-80-110)
280. The Kellogg purge gas compressor (GC-11) shall be equipped with a device to continuously measure the pressure of the purge stream at the inlet to the compressor.
 (Condition #272 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Recordkeeping

281. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to:
- a. The yearly production of ammonia from the Kellogg Ammonia Production Plant, calculated monthly as the sum of each previous consecutive 12-month period.
 - b. The maximum hourly production rate of ammonia from the Kellogg Ammonia Production Plant.
 - c. The date of any emissions from CD-1 and the number of hours these emissions occurred.
 - d. The annual total natural gas and Area 6 recovered gas usage, in thousands of standard cubic feet, by the Kellogg Ammonia Production Plant as both reactant and fuel, calculated monthly as the sum of each previous consecutive 12-month period.
 - e. The annual landfill gas usage, in thousands of standard cubic feet, by the Kellogg Ammonia Production Plant as fuel, calculated monthly as the sum of each previous consecutive 12-month period.
 - f. The annual total heat input, in dekatherms, to the Kellogg Ammonia Production Plant from all fuel, calculated monthly as the sum of each previous consecutive 12-month period.
 - g. Annual measurements of the landfill gas sulfur and chloride compound content.
 - h. The annual emission of NO_x from the Kellogg primary reformer (FU-1), calculated monthly as the sum of each previous consecutive 12-month period.
 - i. Emission factors and any other information necessary to demonstrate compliance with the emission limits of Conditions #273-277.
 - j. Records of the number of hours that FU-1 is in service and GC-11 is not operating during periods of start-up, shutdown and malfunction.
 - k. The results of the monthly visible emission surveys required by Condition #279 and details of any corrective action taken as a result of these inspections.
 - l. Scheduled and unscheduled maintenance records for all process equipment and air pollution control equipment.
 - m. Inventory of spare parts to minimize duration of air pollution control equipment breakdowns.
 - n. Written operating procedures for all process equipment and air pollution control equipment.
 - o. Operator training records.
 - p. The annual throughput of vented gas from VT-418, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by

adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.

These records shall be available for inspection by the DEQ and shall be current for the most recent five (5) years.

(Condition #282 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Reporting

282. The permittee shall furnish written notification to the Piedmont Regional Office of:

- a. The actual date on which construction of the forced draft fan (101BJ) and induced draft fan (101BJR) of the primary reformer commenced within 10 days after such date.
- b. The actual start-up date of the forced draft fan (101BJ) and induced draft fan (101BJR) of the primary reformer within 10 days after such date.

(Condition #281 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

283. The permittee shall report the results of any 40 CFR Part 60 Appendix A Method 9 opacity test performed as a result of Condition #279. If the test indicates the facility is out of compliance with the standard contained in Condition #278, the source shall also report the length of time associated with any exceedance of the standard and the corrective actions taken to correct the exceedance. This report shall be sent to the Piedmont Regional Office within seven days of the applicable test unless otherwise noted in Condition #460.

(9VAC5-80-110)

GIRDLER SYNTHESIS GAS PRODUCTION PLANT

Limitations

Control Equipment Requirements

284. VOC emissions from the natural gas desulfurization drums (CD-3 and CD-4) shall be controlled by the use of non-regenerative adsorbent or an equivalent technology.

(Condition #E.6 of the 3/26/1997 RACT Agreement and 9VAC5-80-110)

Throughput Limits

285. The annual input of natural gas as fuel to the Girdler Synthesis Gas Plant shall not exceed 318,313.8 Girdler gas input units (@1000 BTU/standard cubic foot), calculated monthly as the sum of each previous consecutive 12-month period.

(Condition #283 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

286. The annual input of natural gas as a reactant for use in the synthesis gas production process at the Girdler Synthesis Gas Plant shall not exceed 676,053 Girdler gas input units (@1000 BTU/standard cubic foot), calculated monthly as the sum of each previous consecutive 12-month period.

(Condition #284 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Emission Limitations

287. Emissions from the operation of the Girdler primary reformer (FU-6) shall not exceed the limits specified below:

Particulate Matter	1.2 lb/hr	4.9 tons/yr
Particulate Matter (PM-10)	1.2 lb/hr	4.9 tons/yr
Sulfur Dioxide	0.1 lb/hr	0.2 tons/yr
Nitrogen Oxides (as NO ₂)	20.7 lb/hr	81.2 tons/yr
Carbon Monoxide	3.8 lb/hr	14.4 tons/yr
VOC	0.3 lb/hr	1.0 tons/yr

(Condition #285 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

288. Emissions from the operation of the Girdler desulfurization drums (CD-3, 4) shall not exceed the limits specified below:

Carbon Monoxide	2580.0 lb/hr	12.0 tons/yr
VOC	1350.0 lb/hr	6.0 tons/yr

(Condition #286 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

289. No owner or other person shall cause or permit to be discharged into the atmosphere from any affected facility any visible emissions which exhibit greater than 20% opacity, except for one six minute period in any one hour of not more than 30% opacity. Failure to meet the requirements of this section because of the presence of water vapor shall not be a violation of this section.
(9VAC5-50-80 and 9VAC5-80-110)

Monitoring

290. The Girdler Primary Reformer FU-6 shall be observed visually at least once each operating month for at least a brief time period to determine which emissions units have normal visible emissions (does not include condensed water vapor/steam), unless a 40 CFR 60 Appendix A Method 9 visible emissions evaluation is performed on the emissions unit. Each emissions unit observed having above normal visible emissions shall be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded.
(9VAC5-80-110)

Recordkeeping

291. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to:
- a. The yearly production of synthesis gas from the Girdler Synthesis Gas Plant, calculated monthly as the sum of each previous consecutive 12-month period.
 - b. The maximum hourly production rate of synthesis gas from the Girdler Synthesis Gas Plant.
 - c. For CD-3 and CD-4, the adsorbent replacement dates and periods of usage.
 - d. The monthly and annual natural gas usage, in thousands of standard cubic feet, by the Girdler Synthesis Gas Plant as both reactant and fuel. The annual usage shall be calculated monthly as the sum of each previous consecutive 12-month period.
 - e. The annual emissions of each pollutant listed in Conditions #287-288 from FU-6, CD-3 and CD-4, calculated monthly as the sum of each previous consecutive 12-month period.
 - f. Emission factors and any other information necessary to demonstrate compliance with the emission limits of Conditions #287-288.
 - g. The results of the monthly visible emission surveys required by Condition #290 and details of any corrective action taken as a result of these inspections.

These records shall be available for inspection by the DEQ and shall be current for the most recent five (5) years.

(Condition #287 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Reporting

292. The permittee shall report the results of any 40 CFR Part 60 Appendix A Method 9 opacity test performed as a result of Condition #290. If the test indicates the facility is out of compliance with the standard contained in Condition #289, the source shall also report the length of time associated with any exceedance of the standard and the corrective actions taken to correct the exceedance. This report shall be sent to the Piedmont Regional Office within seven days of the applicable test unless otherwise noted in Condition #460.
(9VAC5-80-110)

POWERHOUSE (FU-17)

Limitations

Control Requirements

293. NO_x emissions from the FU-17 boiler shall be controlled by LNB with FGR. The LNB shall be installed and operated in accordance with manufacturer's specifications.
(Condition #2 of the 4/24/2010 Permit and 9VAC5-80-110)

294. The following emission standards shall apply to NOx from the FU-17 boiler.

- a. When the FU-17 boiler is operating on a single fuel-firing scenario in the table below for at least 30 consecutive operating days, the FU-17 boiler shall achieve the corresponding emission limit on a 30-day rolling average, as follows:

Fuel-firing scenario	NOx emission limit	Basis
Natural gas	0.036 lb/MMBtu	9VAC5-50-260
Natural gas with Area 6 residue	0.188 lb/MMBtu	9VAC5-50-260
No. 2 oil	0.172 lb/MMBtu	9VAC5-50-260
No. 2 oil with Area 6 residue	0.20 lb/MMBtu	9VAC5-50-410

- b. When combusting a combination of natural gas, No. 2 oil, and Area 6 residue, NOx emissions from the FU-17 boiler shall not exceed the lesser of 0.20 lb/MMBtu or the value derived from the following formula on a 30-day rolling average basis:

$$\text{30-day rolling average NOx limit in lb/MMBtu} = \frac{(A \times 0.036) + (B \times 0.188) + (C \times 0.172) + (D \times 0.299)}{\text{Total heat input from all fuels in the 30-day period MMBtu}}$$

where:

- A = Heat input from natural gas alone, in MMBtu, over the 30-day period
- B = Heat input from natural gas fired with Area 6 residue, in MMBtu, over the 30-day period
- C = Heat input from No. 2 oil alone, in MMBtu, over the 30-day period
- D = Heat input from No. 2 oil fired with Area 6 residue, in MMBtu, over the 30-day Period

and the NOx emission limit factors are:

- 0.036 lb/MMBtu for natural gas
- 0.188 lb/MMBtu for natural gas fired with Area 6 residue
- 0.172 lb/MMBtu for No. 2 oil
- 0.299 lb/MMBtu for No. 2 oil fired with Area 6 residue

These standards apply at all times, including periods of start-up, shutdown and malfunction.

A new 30-day rolling average shall be calculated for each steam generating unit operating day as the average of all the hourly NOx emission data for the previous 30 steam generating unit operating days. (40 CFR 60.44b(a), 60.44b(h), 40 CFR 60.44b(i), 40 CFR 60.46b(a), 40 CFR 60.46b(e)(3), Condition #3 of the 4/24/2020 NSR Permit, and 9VAC5-80-110)

295. PM-10, PM-2.5, CO, and VOC emissions from the FU-17 boiler shall be controlled by good combustion practices, operator training, and proper emission unit design, construction and maintenance. Boiler operators shall be trained in the proper operation of all such equipment. Training shall consist of a review and familiarization of the manufacturer's operating instructions, at a minimum. The permittee shall maintain records of the required training including a statement of time, place and nature of training provided. The permittee shall have available good written operating procedures and a maintenance schedule for the boiler. These procedures shall be based on the manufacturer's recommendations and/or

best engineering practices, at a minimum. All records required by this condition shall be kept on site and made available for inspection by the DEQ.

(Condition #5 of the 4/24/2020 NSR Permit and 9VAC5-80-110)

296. Sulfur Dioxide (SO₂) emissions from the FU-17 boiler shall be controlled by the use of low-sulfur fuels such as pipeline quality natural gas and distillate oil with a sulfur content of no more than 0.021% (by weight) per shipment.

(Condition #6 of the 4/24/2020 NSR Permit and 9VAC5-80-110)

Operating Limitations

297. The approved fuels for the FU-17 boiler are natural gas, either alone or combined with Area 6 residue, or #2 distillate fuel oil, either alone or combined with Area 6 residue, or for flush oil. This condition provides for the combustion of Area 6 residue only to the extent that Area 6 residue is non-hazardous secondary material when combusted in FU-17 and the permittee maintains records as required in Condition #320.k. A change in the fuel shall be considered a change in the operation of the FU-17 boiler and may require a new or amended permit. However, if a change in the fuel is not subject to new source review permitting requirements, this condition should not be construed to prohibit such a change.

(Condition #8 of the 4/24/2020 NSR Permit and 9VAC5-80-110)

298. The FU-17 boiler shall consume no more than the following quantities of fuels:

- 2,400 million cubic feet of natural gas per year;
- 4,250 thousand gallons of distillate oil per year;
- 360 gallons per hour and 1,800 thousand gallons per year of Area 6 residue.
- The total heat input from all fuels to FU-17 shall not exceed 275.2 MMBtu/hr.

Annual fuel throughput shall be calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.

(Condition #10 of the 4/24/2020 NSR Permit and 9VAC5-80-110)

299. The fuels burned in the FU-17 boiler shall meet the specifications below:

Distillate Oil which meets the ASTM D396 specification for Grades 1 or 2 fuel oil and:

Maximum sulfur content per shipment: 0.021% (by weight)

Area 6 residue is defined as a non-hazardous secondary material from the Area 6 cyclohexanone production process having combustion and emission characteristics similar to that of residual oil, except that Area 6 residue shall have a maximum sulfur content of 0.21% (by weight).

(Condition #13 of the 4/24/2020 NSR Permit and 9VAC5-80-110)

300. The permittee shall obtain a certification from the fuel supplier with each shipment of distillate oil. Each fuel supplier certification shall include the following:

- a. The name of the fuel supplier;
- b. The date on which the distillate oil was received;

- c. The quantity of distillate oil delivered in the shipment;
- d. A statement that the distillate oil complies with the American Society for Testing and Materials specifications ASTM D396 for Grades 1 or 2 fuel oil, or other DEQ approved fuel specifications;
- e. The sulfur content of the distillate oil;
- f. Fuel sampling and analysis, independent of that used for certification, as may be periodically required or conducted by DEQ.

Exceedance of these specifications may be considered credible evidence of the exceedance of emission limits.

(Condition #14 of the 4/24/2020 NSR Permit and 9VAC5-80-110)

301. Except where this permit is more restrictive than the applicable requirement, the FU-17 boiler shall be operated in compliance with the requirements of 40 CFR 60 Subpart Db and 40 CFR 63 Subpart DDDDD (New or Reconstructed Boilers and Process Heaters).
 (Condition #15 of the 4/24/2020 NSR Permit and 9VAC5-80-110)

Emission Limitations

302. Emissions from the FU-17 boiler shall not exceed the limits specified below:

Particulate Matter (filterable only)		5.5 lb/hr	11.4 tons/yr
Particulate Matter (PM-10)		6.8 lb/hr	18.6 tons/yr
Particulate Matter (PM-2.5)		5.8 lb/hr	17.2 tons/yr
Sulfur Dioxide		18.3 lb/hr	40.7 tons/yr
Nitrogen Oxides (as NO ₂)	0.2 lbs/MMBtu*	81.9 lbs/hr*	187.8 tons/yr
Carbon Monoxide		15.6 lbs/hr	58.1 tons/yr
VOC		1.8 lbs/hr	6.1 tons/yr

*Determined on a 30-day rolling average basis.

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Conditions #293, 296-299, 306, and 309.

(40 CFR 60.44b, Condition #17 of the 4/24/2020 NSR Permit and 9VAC5-80-110)

303. Visible emissions from the FU-17 boiler shall not exceed 10% opacity as determined by EPA Method 9 (reference 40 CFR 60 Appendix A).
 (Condition #21 of the 4/24/2020 NSR Permit and 9VAC5-80-110)

304. **Emissions Testing** - The FU-17 boiler shall be constructed so as to allow for emissions testing upon reasonable notice at any time, using appropriate methods. This includes constructing the facility/equipment such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and providing a stack or duct that is free from cyclonic flow. Sampling ports shall be provided when requested at the appropriate locations and safe sampling platforms and access shall be provided. (Condition #24 of the 4/24/2020 NSR Permit and 9VAC5-80-110)

Monitoring

305. The permittee shall conduct the following monitoring to determine compliance with the Area 6 residue sulfur content requirements.
- Once per week that the boiler FU-17 fires Area 6 residue, the permittee shall collect and analyze an Area 6 residue sample for sulfur content in an as-fired condition from the boiler, in accordance with ASTM-D1552-08, to determine compliance with Condition #299.
 - After the collection of 4 months of monitoring data in accordance with this condition, the permittee may propose a reduction in the frequency of the Area 6 residue sulfur monitoring to the Piedmont Regional Office. Upon written approval by the Piedmont Regional Office, the permittee may reduce the frequency of the Area 6 residue sulfur monitoring accordingly. (9VAC5-80-110)
306. Initial performance tests shall be conducted for carbon monoxide, nitrogen oxides, and filterable particulate matter from the FU-17 boiler to determine compliance with the emission limits in Condition #302. The tests shall be performed while burning distillate oil, distillate oil with Area 6 residue, and natural gas with Area 6 residue, when such fuel combinations are originally combusted. The tests shall be performed, reported, and demonstrate compliance within 60 days after the FU-17 boiler achieves the maximum production rate at which the facility will be operated for each fuel, but no later than 180 days after start-up of the FU-17 boiler. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Piedmont Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit. (Condition #25 of the 4/24/2020 NSR Permit, and 9VAC5-80-110)
307. For the initial compliance test, NO_x shall be monitored for 30 successive steam generating unit operating days and the 30-day average emission rate shall be used to determine compliance with the NO_x emission standard (lb/MMBtu) and the hourly emission limit (lb/hr) in Condition #302. The 30-day average emission rate is calculated as the average of all hourly emissions data recorded by the monitoring system during the 30-day test period. Following the date on which the performance test is completed or is required to be completed in 40 CFR 60.8, whichever date comes first, the permittee shall determine compliance with the NO_x emission standard and hourly emission limit in Condition #302 on a continuous basis through the use of the 30-day rolling average emission rate. (40 CFR 60.46b(c), 40 CFR 60.46b(e)(1) and (3), and 9VAC5-80-110)
308. Visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall also be conducted on boiler FU-17 when combusting distillate oil. Each test shall consist of ten sets of 24 consecutive observations (at 15 second intervals) to yield a six-minute average. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30

days prior to testing. The evaluation shall be performed, reported, and demonstrate compliance within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. One copy of the test result shall be submitted to the Piedmont Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit.

(40 CFR 60.48b(a), Condition #26 of the 4/24/2020 NSR Permit, and 9VAC5-80-110)

309. The permittee shall install a continuous emission monitoring system (CEMS) meeting the design specifications of 40 CFR Part 60 Appendix B, to measure and record the emissions of nitrogen oxides (measured as NO₂) and oxygen (or carbon dioxide) from the FU-17 boiler as lb/MMBtu and lb/hr. Data from the CEMS shall be reduced to 30-day rolling averages per the procedures in 40 CFR Part 60, Subpart Db, and shall be used to determine compliance with the emission standards (in lb/MMBtu and lb/hr) on a 30-day rolling average as specified in Conditions #294.a, #294.b, and 302. The NO_x CEMS shall be installed, calibrated, maintained, audited and operated in accordance with the requirements of 40 CFR 60.13, 40 CFR 60 Subpart Db and 40 CFR 60 Appendices B and F.

(40 CFR 60.13(a), 40 CFR 60.48b(b)(1), Condition #28 of the 4/24/2020 NSR Permit and 9VAC5-80-110)

310. Performance evaluations of the continuous emission monitoring system (CEMS) shall be conducted in accordance with 40 CFR Part 60, Appendix B, and shall take place prior to the performance tests under 9VAC5-50-30 or within 30 days thereafter. One copy of the performance evaluations report shall be submitted to the Piedmont Regional Office within 45 days of the evaluation. The CEMS shall be installed and operational prior to conducting initial performance tests. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation and calibration of the device. A 30-day notification, prior to the demonstration of continuous monitoring system's performance, and subsequent notifications shall be submitted to the Piedmont Regional Office.

(40 CFR 60.13(b) and Condition #30 of the 4/24/2020 NSR Permit and 9VAC5-80-110)

311. If a NO_x emission rate CEMS has been installed to meet the requirements of 40 CFR Part 75, that CEMS may be used to meet the requirements of 40 CFR 60, Subpart Db, except that the reporting and recordkeeping requirements of 40 CFR 60.49b shall also be met. Data reported to meet the requirements of §60.49b shall not include data substituted using the missing data procedures in subpart D of 40 CFR Part 75, nor shall the data have been adjusted according to the procedures of 40 CFR Part 75.

(40 CFR 60.48b(b)(2) and 9VAC 5-80-110)

312. The CEMS required by Condition #309 shall be operated and data recorded during all periods of operation of the affected facility except for CEMS breakdowns and repairs. Data shall be recorded during calibration checks, and zero and span adjustments.

(40 CFR 60.48b(c) and 9VAC5-80-110)

313. The 1-hr average NO_x emission rates measured by the NO_x monitor required by Condition #309 shall be expressed in lb/MMBtu heat input and shall be used to calculate the average emission rate. These 1-hour averages shall be computed from four or more data points equally spaced over each one-hour period. Data recorded during periods of continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages computed under this Condition.

(40 CFR 60.48b(d), 40 CFR 60.13(h)(2) and 9VAC5-80-110)

314. The NO_x monitoring system for the FU-17 boiler shall meet a minimum data availability of 90 percent of boiler operating hours on a 12-month rolling average. The NO_x monitoring system shall also meet the quality assurance requirements of 40 CFR 60.13 and 40 CFR Part 60, Appendix B and F.
(40 CFR 60.13, 40 CFR 60.48b(e), Condition #29 of the 4/24/2020 NSR Permit and 9VAC5-80-110)
315. The span value for the NO_x CEMS shall be 500 ppm. Alternatively, if a NO_x CEMS has been installed to meet the requirements of 40 CFR Part 75, the span values for that NO_x CEMS must be determined according to Appendix A of 40 CFR Part 75, Section 2.1.2.
(40 CFR 60.48(b)(2), 40 CFR 60.48b(e)(2)(i) and 9VAC5-80-110)
316. When NO_x emission data are not obtained because of CEMS breakdowns, repairs, calibration checks and zero and span adjustments, emission data shall be obtained by using standby monitoring systems, Method 7 of 40 CFR 60, Appendix A, Method 7A of 40 CFR 60, Appendix A, or other approved reference methods to provide emission data for a minimum of 75 percent of the operating hours in each steam generating unit operating day, in at least 22 out of 30 successive steam generating unit operating days.
(40 CFR 60.48b(f) and 9VAC5-80-110)
317. Upon request by the DEQ, the permittee shall conduct additional performance tests for the FU-17 boiler to demonstrate compliance with the emission limits contained in this permit. The details of the tests shall be arranged with the Piedmont Regional Office.
(9VAC5-80-110)
318. Upon request by the DEQ, the permittee shall conduct additional visible emissions evaluations (VEEs) for the FU-17 boiler to demonstrate compliance with the visible emission limits contained in this permit. The details of the VEEs shall be arranged with the Piedmont Regional Office.
(9VAC5-80-110)
319. The permittee shall visually observe the FU-17 boiler at least once each operating week for at least a brief time period to determine compliance with the visible emission standard of Condition #303 (does not include condensed water vapor/steam), unless a 40 CFR 60 Appendix A Method 9 visible emissions evaluation is performed on an emissions unit. Each observation indicating visible emissions in excess of a visible emission standard shall be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded.
(9VAC5-80-110)

Recordkeeping Requirements

320. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to:
- Hourly consumption of Area 6 residue in the FU-17 boiler, in gallons.
 - The daily, monthly and annual consumption of natural gas, distillate oil, and Area 6 residue in the FU-17 boiler. Annual throughput shall be calculated monthly as the sum of each consecutive 12-month period. Compliance for the 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.

- c. The maximum liquid fuel (Area 6 residue and distillate oil combined) combustion rate (gallons per minute as a 60-minute average) for each FU-17 boiler operating day.
- d. The maximum hourly heat input (from all fuels) for each FU-17 boiler operating day.
- e. Monthly calculations of annual heat input for the FU-17 boiler.
- f. Annual capacity factor calculations distillate oil and natural gas as determined on a 12-month rolling average basis with a new capacity factor calculated at the end of each calendar month.
(40 CFR 60.49b(d)(1))
- g. The information required by 40 CFR 60.49b(g)(1)-(10) for each FU-17 boiler operating day.
(40 CFR 60.49b(h))
- h. The 30-day average NO_x emissions limit (lb/MMBtu) from Condition #294.a, or calculated according to Condition #294.b, for each FU-17 boiler operating day.
- i. The results of all FU-17 boiler performance tests.
- j. The shutdown date for powerhouse boiler #B-8.
- k. Documentation demonstrating that Area 6 residue is a non-hazardous secondary material when combusted in FU-17.
- l. Fuel quality records, including fuel receipts for natural gas combusted in the FU-17 boiler (e.g., current valid purchase contract, tariff sheet, or transportation contract) that certify that the fuel meets the definition of natural gas as defined in 40 CFR 60.41b and the applicable sulfur limit.
(40 CFR 60.49b(r)(1))
- m. All Area 6 residue sulfur content analyses and distillate oil fuel supplier certifications.
- n. Continuous monitoring system calibrations and calibration checks, percent operating time, and excess emissions.
- o. The occurrence and duration of any startup, shutdown, or malfunction, any malfunction of the air pollution control equipment, or any periods during which a continuous monitoring system or monitoring device is inoperative.
- p. Records of the visible emission observations, visible emission evaluations and corrective actions required by Condition #319.
- q. Emission factors, CEMS data and any other information necessary to demonstrate compliance with the emission limitations in Condition #302.
- r. Inventory of spare parts to minimize the duration of air pollution control equipment breakdowns.
- s. Written operating procedures for all process equipment and air pollution control equipment.
- t. Scheduled and unscheduled maintenance and operator training records.

These records shall be available for inspection by the DEQ and shall be current for the most recent five ~~(5)~~ years.

(40 CFR 60.49b(d, g, h, r), Condition #22 of the 4/24/2020 NSR Permit, and 9VAC5-80-110)

321. The permittee shall maintain a file in a permanent form suitable for inspection of all measurements, including continuous monitoring system, monitoring device and performance testing measurements, all continuous monitoring system performance evaluations, all continuous monitoring system or monitoring device calibration, span, and drift checks, other required and non-required periodic audits, adjustments, and maintenance performed on these systems or devices. The measurements shall be retained for a period of five years.

(40 CFR 60.7(f), 9VAC5-50-410, 9VAC5-50-50, and 9VAC5-80-110)

Reporting and Notification Requirements

322. The permittee shall furnish written notification to the Piedmont Regional Office of:

- a. The anticipated date of continuous monitoring system performance evaluations postmarked not less than 30 days prior to such date.
- b. The anticipated date of the performance tests required by Condition #306 postmarked at least 30 days prior to such date.

A copy of the written notification referenced in item a above shall be sent to:

Chief, Air Section
Enforcement & Compliance Assurance Division
Air, RCRA and Toxics Branch
US EPA Region 3
1650 Arch Street – 3ED21
Philadelphia, PA 19103

(40 CFR 60.49b(b), Condition #32 of the 4/24/2020 NSR Permit and 9VAC5-80-110)

323. The permittee shall submit to the Administrator the performance test data from the initial performance test and the performance evaluation of the CEMS using the applicable performance specifications in 40 CFR 60, Appendix B.
(40 CFR 60.49b(b) and 9VAC5-80-110)
324. The permittee shall submit fuel quality reports to the Piedmont Regional Office, postmarked no later than the 30th day following the end of each semiannual period ending June 30th and December 31st. If no shipments of distillate oil were received during the semiannual period, the fuel quality report shall consist of the dates included in the semiannual period and a statement that no distillate oil was received during the semiannual period. If distillate oil was received during the reporting period, the report shall include:

- a. The dates included in the semiannual period.
- b. A copy of all fuel supplier certifications for all shipments of distillate oil received during the reporting period, indicating the supplier, volume of shipment, sulfur content (weight percent) and the date the shipment was received.
- c. A signed statement from the owner or operator of the facility that the fuel supplier certifications represent all of the distillate oil received during the reporting period.

One copy of the semiannual fuel report shall be submitted to:

Associate Director
Enforcement & Compliance Assurance Division
Air, RCRA and Toxics Branch
US EPA Region 3
1650 Arch Street – 3ED21
Philadelphia, PA 19103

(Condition #23 of the 4/24/2020 NSR Permit and 9VAC5-80-110)

325. The permittee shall furnish written reports to the Piedmont Regional Office of excess emissions from the FU-17 boiler on a quarterly basis, postmarked no later than the 30th day following the end of the calendar quarter. Excess emissions are defined as any calculated 30-day rolling average NOx emission rate, as determined under 40 CFR 60.46b(e), that exceeds the lb/MMBtu NOx emission standard specified in Condition #294. These reports shall include, but are not limited to the following information:
 - a. The magnitude of excess emissions, any conversion factors used in the calculation of excess emissions, and the date and time of commencement and completion of each period of excess emissions.
 - b. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the process, the nature and cause of the malfunction (if known), the corrective action taken or preventative measures adopted.
 - c. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments; and
 - d. When no excess emissions have occurred or the continuous monitoring systems have not been inoperative, repaired or adjusted, such information shall be stated in that report.
 - e. All other information required by 40 CFR 60.49b(g)(1)-(10) for each boiler operating day.
(40 CFR 60.49b(g-i), Condition #31 of the 4/24/2020 NSR Permit and 9VAC5-80-110)
326. The permittee may submit electronic quarterly reports for NOx in lieu of submitting written reports required by Condition #325. The format of each quarterly electronic report shall be coordinated with the DEQ. The electronic report(s) shall be submitted no later than 30 days after the calendar quarter and shall be accompanied by a certification statement from the permittee, indicating whether compliance with the emission standards and minimum data requirements of this subpart was achieved during the reporting period. Before submitting reports in the electronic format, the permittee shall coordinate with the Piedmont Regional Office to obtain their agreement to submit reports in this alternative format.
(40 CFR 60.49b(v), 9VAC-5-50-50, and 9VAC5-80-110)

327. The permittee shall report the results of any 40 CFR Part 60 Appendix A Method 9 opacity test performed as a result of Condition #319. If the test indicates the facility is out of compliance with the standard contained in Condition #308, the source shall also report the length of time associated with any exceedance of the standard and the corrective actions taken to correct the exceedance. This report shall be sent to the Piedmont Regional Office within seven days of the applicable test unless otherwise noted in Condition #460.
 (9VAC5-80-110)

40 CFR 63 (MACT) Subpart DDDDD Requirements

328. The permittee shall comply with the applicable General Provisions as specified in Table 10 to Subpart DDDDD of Part 63.
 (40 CFR 63.7565 and 9VAC5-80-110)
329. The permittee shall at all times, operate and maintain the FU-17 boiler, including associated air pollution equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.
 (40 CFR 63.7500(a)(3) and 9VAC5-80-110)
330. For startup and shutdown, the permittee shall meet the work practice standards according to Items 5 and 6 of Table 3 to Subpart DDDDD of Part 63.
 (40 CFR 63.7540(d) and 9VAC5-80-110)
331. In accordance with Table 1 to Subpart DDDDD of Part 63, items 14 and 15, emissions from the FU-17 boiler when operating in the “unit designed to burn heavy liquid fuel” subcategory (Area 6 residue combined with either natural gas or distillate oil), the FU-17 boiler shall not exceed the limits specified below:

Particulate Matter (PM) ¹ (filterable only)	0.013 lb/MMBtu heat input, OR
Total Selected Metals (TSM) ¹	7.5 x 10 ⁻⁵ lb/MMBtu heat input
Carbon Monoxide	130 ppm _{dv} ²
Hydrogen Chloride	4.4 x 10 ⁻⁴ lb/MMBtu heat input
Mercury	4.8 x 10 ⁻⁷ lb/MMBtu heat input

¹Comply with either the PM or TSM standard

²Measured on a dry basis corrected to 3 percent oxygen, 3-run average (ppm_{dv} = parts per million dry volume)

These standards apply at all times the boiler is operating, except for periods of startup and shutdown during which time the boiler must comply only with Items 5 and 6 in Table 3 to Subpart DDDDD of Part 63. The

permittee shall demonstrate continuous compliance with each emission limit according to the methods specified in Table 8 to Subpart DDDDD of Part 63 and 40 CFR 63.7540(a)(1) through (19). (40 CFR 63.7500(a) and (f), 40 CFR 63.7540, and 9VAC5-80-110)

332. In accordance with Table 1 to Subpart DDDDD of Part 63, items 14 and 16, emissions from the FU-17 boiler when operating in the “unit designed to burn light liquid fuel” subcategory (either distillate oil only or in combination with natural gas) shall not exceed the limits specified below:

Particulate Matter (PM) ¹ (filterable only)	1.1 x 10 ⁻³ lb/MMBtu heat input, OR
Total Selected Metals (TSM) ¹	2.9 x 10 ⁻⁵ lb/MMBtu heat input
Carbon Monoxide	130 ppm _{dv} ²
Hydrogen Chloride	4.4 x 10 ⁻⁴ lb/MMBtu heat input
Mercury	4.8 x 10 ⁻⁷ lb/MMBtu heat input

¹Comply with either the PM or TSM standard

²Measured on a dry basis corrected to 3 percent oxygen, 3-run average (ppm_{dv} = parts per million dry volume)

These standards apply at all times the boiler is operating, except for periods of startup and shutdown during which time the boiler must comply only with Items 5 and 6 in Table 3 to Subpart DDDDD of Part 63. The permittee shall demonstrate continuous compliance with each emission limit according to the methods specified in Table 8 to Subpart DDDDD of Part 63 and 40 CFR 63.7540(a)(1) through (19). (40 CFR 63.7500(a) and (f), 40 CFR 63.7540, and 9VAC5-80-110)

333. The permittee shall demonstrate compliance with all applicable emission limits in Condition #331 and #332 using performance stack testing, fuel analysis, or continuous monitoring systems (CMS), including a continuous monitoring system (CEMS), or particulate matter continuous parameter monitoring system (PM CPMS), where applicable. The permittee may demonstrate compliance with the applicable emission limit for hydrogen chloride (HCl), mercury, or total selected metals (TSM) using fuel analysis if the emission rate calculated according to 40 CFR 63.7530(c) is less than the applicable emission limit. Otherwise the permittee shall demonstrate compliance for HCl, mercury, or TSM using performance stack testing. (40 CFR 63.7505(c) and 9VAC5-80-110)
334. The permittee shall complete the initial compliance demonstration with the emission limits within 180 days after startup. The permittee shall demonstrate initial compliance with the applicable work practice standards in Table 3 to Subpart DDDDD of Part 63 within the applicable annual schedule as specified in 40 CFR 63.7515(d) following the initial compliance date specified in 40 CFR 63.7495(a). Thereafter, the permittee is required to complete the annual tune-up as specified in 40 CFR 63.7515(d). For affected sources that switch fuel subcategories consistent with 40 CFR 63.7545(h) after the initial compliance date, the permittee shall demonstrate compliance within 60 days of the effective date of the switch, unless a compliance demonstration was previously conducted for this subcategory within the previous 12 months. (40 CFR 63.7510(f), (g), and (k), and 9VAC5-80-110)
335. Should the permittee operate the FU-17 boiler in either the “units designed to burn heavy liquid fuel” subcategory, or the “units designed to burn light liquid fuel” subcategory, the permittee shall install,

operate, and maintain an oxygen analyzer system, as defined in 40 CFR 63.7575, to demonstrate compliance with the applicable carbon monoxide emission limits in Conditions #331 or #332. The 30-day rolling average oxygen content of the emissions from FU-17 shall be maintained at or above the lowest hourly average oxygen concentration measured during the CO performance test as specified in Table 8 to Subpart DDDDD of Part 63.

(40 CFR 63.7525(a) and 9VAC5-80-110)

336. Should the permittee demonstrate compliance with any applicable emission limit through performance testing and subsequent compliance with operating limits through the use of CPMS, or with a CEMS or COMS, the permittee shall develop a site-specific monitoring plan according to the requirements in 40 CFR 63.7505(d)(1)-(4) for the use of any CEMS, COMS, or CPMS. This requirement also applies should the permittee petition the EPA Administrator for alternative monitoring parameters under 40 CFR 63.8(f). (40 CFR 63.7505(d) and 9VAC5-80-110)
337. Should the permittee choose to comply using definition (2) of “Startup” in 40 CFR 63.7575, the permittee shall develop and implement a written startup and shutdown plan (SSP) according to the requirements in Table 3 to Subpart DDDDD of Part 63. The SSP shall be maintained onsite and available upon request for public inspection. (40 CFR 63.7505(e) and 9VAC5-80-110)
338. If the permittee elects to demonstrate compliance with any of the applicable emission limits in Condition #331 and #332 through performance testing, initial compliance requirements shall include all of the following:
- a. Conduct performance tests according to 40 CFR 63.7520 and Table 5 to Subpart DDDDD of Part 63.
 - b. Conduct a fuel analysis for each type of fuel burned in the FU-17 boiler according to 40 CFR 63.7521 and Table 6 to Subpart DDDDD of Part 63, except as specified in 40 CFR 63.7510(a)(2)(i) through (iii).
 - c. Establish operating limits according to 40 CFR 63.7530 and Table 7 to Subpart DDDDD of Part 63.
 - d. Conduct CMS performance evaluations according to 40 CFR 63.7525. (40 CFR 63.7510(a) and 9VAC5-80-110)
339. The permittee shall conduct all applicable performance tests according to 40 CFR 63.7520 on an annual basis, except as specified in paragraphs (a) and (b) below. The facility must develop a site-specific stack test plan according to the requirements of 40 CFR 63.7(c). Annual performance tests must be completed no more than 13 months after the previous performance test, except as specified in paragraphs (a) and (b) below:
- a. If the performance tests for a given pollutant for at least 2 consecutive years shows that emissions are below 75 percent of the emission limit for the pollutant, and if there are no changes in the individual boiler or air pollution control equipment that could increase emissions, the permittee may choose to conduct performance tests for the pollutant every third year. Each such performance test must be conducted no more than 37 months after the previous performance test. The requirement to test at maximum chloride input level is waived unless the stack test is conducted for HCl. The requirement to test at maximum mercury input level is waived unless the stack test is conducted for mercury. The requirement to test at maximum TSM input level is waived unless the stack test is conducted for TSM.

- b. If a performance test shows emissions exceeded the emission limit or 75 percent of the emission limit for a pollutant, the permittee shall conduct annual performance tests for that pollutant until all performance tests over a consecutive 2-year period meet the required level (at or below 75 percent of the emission limit), as specified in Conditions #331 and #332.
(40 CFR 63.7515(a), (b), and (c), 40 CFR 63.7520, and 9VAC5-80-110)
- 340. The permittee shall perform tune-ups on the FU-17 boiler every five years in accordance with 40 CFR 63.7540(a)(10) and Table 3 to Subpart DDDDD of Part 63. Each tune-up shall be performed no more than 61 months after the previous tune-up.
(40 CFR 63.7540(a) and 9VAC5-80-110)
- 341. The permittee shall monitor and collect data according to 40 CFR 63.7535(a), (b), (c), and (d) and the site specific monitoring plan required by 40 CFR 63.7505(d).
(40 CFR 63.7535(a), (b), (c), and (d), and 9VAC5-80-110)
- 342. The permittee shall keep records according to 40 CFR 63.7555(a)(1) and (2). These records shall include:
 - a. A copy of each notification and report submitted to comply with 40 CFR 63, Subpart DDDDD, including all documentation supporting any Initial Notification or Notification or semiannual compliance report that was submitted, according to the requirements of 40 CFR 63.10(b)(2)(xiv).
 - b. Records of performance tests, fuel analyses, or other compliance demonstrations and performance evaluations as required in 40 CFR 63.10(b)(2)(viii).
(40 CFR 63.7555(a))
 - c. For each CEMS and continuous monitoring system required by MACT Subpart DDDDD, all records listed in 40 CFR 63.7555(b)(1)-(5).
(40 CFR 63.7555(b))
 - d. Records required in Table 8 to Subpart DDDDD of Part 63, including records of all monitoring data and calculated averages for applicable operating limits, such as oxygen content and boiler operating load, to show continuous compliance with each applicable emission limit and operating limit.
(40 CFR 63.7555(c))
 - e. Applicable records required by 40 CFR 63.7555(d)(1) through (11).
(40 CFR 63.7555(d))
 - f. Records of annual tune-ups for the FU-17 boiler.
(40 CFR 63.7555 and 9VAC5-80-110)
- 343. The permittee's records shall be in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1).
 - a. As specified in 40 CFR 63.10(b)(1), the permittee must keep each record for five years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.
 - b. The permittee must keep each record on site, or they must be accessible from on site, for at least two years after the date of each occurrence, measurement, maintenance, corrective action, report, or record,

according to 40 CFR 63.10(b)(1). The permittee can keep the records off site for the remaining three years.

(40 CFR 63.7560(a), (b), and (c), and 9VAC5-80-110)

344. The permittee shall report the results of performance tests and the associated fuel analyses conducted to demonstrate compliance with the emission limits in Conditions #331 and #332 within 60 days after the completion of the performance tests. This report must also verify that the operating limits for each boiler or process heater have not changed or provide documentation of revised operating limits established according to 40 CFR 63.7530 and Table 7 to Subpart DDDDD of Part 63, as applicable. The reports for all subsequent performance tests must include all applicable information required in 40 CFR 63.7550. (40 CFR 63.7515(f) and 9VAC5-80-110)
345. The permittee shall report each instance in which each applicable emission limit and operating limit in Tables 1 through 4 of Subpart DDDDD of Part 63 was not met. These instances are deviations from the emission limits or operating limits, respectively, in 40 CFR 63 Subpart DDDDD. These deviations must be reported according to the requirements in 40 CFR 63.7550. (40 CFR 63.7540(b) and 9VAC5-80-110)
346. The permittee shall submit the following reports:
- a. Each report in Table 9 to Subpart DDDDD of Part 63 that applies to the permitted facility. The permittee must submit each report, according to 40 CFR 63.7550(h), by the data in Table 9 to Subpart DDDDD of Part 63 and according to the requirements in 40 CFR 63.7550(b)(1)-(4).
 - b. For units that are subject only to a requirement to conduct subsequent annual tune-ups according to 40 CFR 63.7540(a)(10), and not subject to emission limits specified in Table 4 to Subpart DDDDD to Part 63, the permittee shall submit only an annual compliance report as specified in 40 CFR 63.7550(b)(1)-(4). (40 CFR 63.7550(a) and (b), and 9VAC5-80-110)
347. A compliance report shall contain the following information depending on how the facility chooses to comply with the limits set in 40 CFR 63 Subpart DDDDD:
- a. If the facility is subject to the requirements of a tune-up, the permittee shall submit a compliance report with the information in 40 CFR 63.7550(c)(5)(i) through (iii), (xiv), and (xvii).
 - b. If complying with the applicable emission limits with performance testing, the permittee shall submit a compliance report with the information in 40 CFR 63.7550(c)(5)(i) through (iii), (vi), (vii), (viii), (xv), (xviii), and 40 CFR 63.7550(d).
 - c. If complying with an emissions limit using a CMS the compliance report shall contain the information in 40 CFR 63.7550(c)(5)(i) through (iii), (v), (vi), (xi) through (xiii), (xv through xviii) and 40 CFR 63.7550(e).
 - d. For each deviation from an emission or operating limit in 40 CFR 63 Subpart DDDDD when not using a CMS to comply with that emission limit or operating limit, or from the work practice standards for periods of startup and shutdown, the compliance report must additionally contain the information required in 40 CFR 63.7550(d)(1) through (3).

- e. For each deviation from an emission limit, operating limit, and monitoring requirement in 40 CFR 63 Subpart DDDDD that occurs when using a CMS to comply with the emission limit or operating limit, the compliance report must additionally contain the information in 40 CFR 63.7550(e)(1) through (9). This includes any deviations from the site-specific monitoring plan as required in 40 CFR 63.7505(d). (40 CFR 63.7550(c), (d), (e) and (h), and 9VAC5-80-110)
348. The permittee shall submit the reports required by Conditions #346 and #347 according to the procedures specified in 40 CFR 63.7550(h)(1)-(3). A copy of each report shall also be submitted to the Piedmont Regional Office.
(40 CFR 63.7550(h) and 9VAC5-80-110)
349. The permittee shall submit the following MACT Subpart DDDDD notifications:
- a. All of the notifications in 40 CFR 63.7(b) and (c), §63.8(e), (f)(4) and (6), and §63.9(b) through (h) that apply to the permitted facility by the dates specified.
 - b. As specified in 40 CFR 63.9(b)(2), the permittee shall submit an Initial Notification not later than 15 days after the actual startup of the FU-17 boiler.
 - c. For each initial compliance demonstration as specified in 40 CFR 63.7530, the permittee shall submit a Notification of Compliance Status, including all performance test results and fuel analyses, before the close of business on the 60th day following the completion of all performance test and/or other initial compliance demonstrations for the FU-17 boiler according to 40 CFR 63.10(d)(2). The Notification of Compliance Status Report shall contain all information specified in paragraphs 40 CFR 63.7545(e)(1)-(8), as applicable.
 - d. For each required performance test, the permittee shall submit a Notification of Intent to conduct a performance test at least 60 days before the performance test is scheduled to begin.
 - e. If the permittee has switched fuels or made a physical change to the FU-17 boiler and the fuel switch or physical change resulted in the applicability of a different subcategory, the permittee shall provide notice of the date upon which the fuel switch or physical change was made within 30 days of the switch/change. The notification must identify the information in 40 CFR 63.7545(h)(1)-(3).
(40 CFR 63.7545(a), (c), (d), (e), and (h), and 9VAC5-80-110)

SULF-N26 PILOT PLANT

Limitations

Control Equipment Requirements

350. Particulate emissions from the ammonium sulfate grinding and screening operation shall be controlled by a fabric filter.
(Condition #347 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
351. Particulate emissions from the ammonium sulfate slurry prill tower shall be controlled by a scrubber.
(Condition #348 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
352. Particulate emissions from the ammonium sulfate slurry dryer/cooler shall be controlled by a fabric filter.
(Condition #349 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

353. Fugitive emission controls shall include the following, or equivalent, as approved by DEQ:

- a. Dust from material handling and load-outs shall be controlled by wet suppression or equivalent (as approved by the DEQ).
 - b. All material being stockpiled shall be kept adequately moist to control dust during storage and handling or covered at all times to minimize emissions.
 - c. Dust from haul roads and traffic areas shall be controlled by the application of asphalt, water, suitable chemicals, or equivalent methods approved by the DEQ.
 - d. Reasonable precautions shall be taken to prevent deposition of dirt on public roads and subsequent dust emissions. Dirt, product, or raw material spilled or tracked onto paved surfaces shall be promptly removed to prevent particulate matter from becoming airborne.
- (Condition #350 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Throughput Limitations

354. The SULF-N26 pilot plant shall process no more than 2,770 Fiorelli Units per year of ammonium sulfate feed, calculated monthly as the sum of each consecutive 12-month period.
 (Condition #351 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
355. The SULF-N26 pilot plant shall process no more than 4,467.6 Fiorelli Units per year of SULF-N26 product, calculated monthly as the sum of each consecutive 12-month period.
 (Condition #352 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Emission Limitations

356. Emissions from the ammonium sulfate grinding and screening operation fabric filter shall not exceed the limitations specified below:

Particulate Matter	0.10 lb/hr	0.36 tons/yr
Particulate Matter (PM-10)	0.10 lb/hr	0.36 tons/yr
Particulate Matter (PM-2.5)	0.10 lb/hr	0.36 tons/yr
VOC	0.10 lb/hr	0.36 tons/yr

(Condition #353 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

357. Emissions from the FASN (Fusion Ammonium Sulfate Nitrate) mix tank shall not exceed the limitations specified below:

Particulate Matter	0.01 lb/hr	0.03 tons/yr
Particulate Matter (PM-10)	0.01 lb/hr	0.03 tons/yr

Particulate Matter (PM-2.5)	0.01 lb/hr	0.03 tons/yr
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(Condition #354 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

358. Emissions from the ammonium sulfate slurry prill tower scrubber shall not exceed the limitations specified below:

Particulate Matter	0.01 lb/hr	0.02 tons/yr
Particulate Matter (PM-10)	0.01 lb/hr	0.02 tons/yr
Particulate Matter (PM-2.5)	0.01 lb/hr	0.02 tons/yr

(Condition #355 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

359. Emissions from the ammonium sulfate slurry dryer/cooler fabric filter shall not exceed the limitations specified below:

Particulate Matter	0.01 lb/hr	0.02 tons/yr
Particulate Matter (PM-10)	0.01 lb/hr	0.02 tons/yr
Particulate Matter (PM-2.5)	0.01 lb/hr	0.02 tons/yr

(Condition #356 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

360. Emissions from the operation of the SULF-N26 pilot plant (inclusive of all emission units specified in the SULF-N26 pilot plant section of Condition #2 of this permit) shall not exceed the limits specified below:

Particulate Matter	0.43 lb/hr	1.59 tons/yr
Particulate Matter (PM-10)	0.27 lb/hr	1.00 tons/yr
Particulate Matter (PM-2.5)	0.15 lb/hr	0.56 tons/yr
VOC	0.10 lb/hr	0.36 tons/yr

(Condition #357 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

361. Visible emissions from the process vents and fabric filters referenced in Conditions #350-352 shall not exceed 5 percent opacity as determined by EPA Method 9 (reference 40 CFR 60 Appendix A).
 (Condition #358 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

362. Visible emissions from SULF-N26 pilot plant fugitive emission sources shall not exceed 10 percent opacity as determined by EPA Method 9 (reference 40 CFR 60 Appendix A).
 (Condition #359 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Monitoring

363. Initial performance tests shall be conducted for particulate matter, particulate matter (PM-10) and particulate matter (PM-2.5) from the ammonium sulfate grinding and screening operation to determine compliance with the emission limits contained in Condition #356. The tests shall be performed within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. Tests shall be conducted and reported and data reduced as set forth in 9VAC5-50-30. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. Two copies of the test results shall be submitted to the Piedmont Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit.
(Condition #360 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
364. The grinder fabric filter shall be equipped with a device to continuously measure the differential pressure across the fabric filter. Each monitoring device shall be installed, maintained, calibrated and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the fabric filter is operating.
(Condition #361 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
365. The prill tower scrubber shall be equipped with a scrubber liquid (water) flow meter. The flow meter shall be installed, maintained, calibrated and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. The flow meter shall be provided with adequate access for inspection and shall be in operation when the water scrubber is operating.
(Condition #362 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
366. The dryer/cooler fabric filter shall be equipped with a device to continuously measure the differential pressure across the fabric filter. Each monitoring device shall be installed, maintained, calibrated and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the fabric filter is operating.
(Condition #363 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
367. The grinder fabric filter shall be operated such that, at all times of required operation, the fabric filter differential pressure is equal to or greater than the manufacturer's minimum recommendation or a rate otherwise approved by the Piedmont Regional Office. To ensure good performance, the fabric filter differential pressure monitoring device shall be observed by the permittee with a frequency of not less than once per operating shift. The permittee shall keep a log of the observations required by this condition and any related corrective actions.
(Condition #364 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
368. The prill tower scrubber shall be operated such that, at all times of required operation, the scrubber liquid (water) flow rate is equal to or greater than the manufacturer's minimum recommendation or a rate otherwise approved by the Piedmont Regional Office. To ensure good performance, the scrubber liquid flow meter shall be observed by the permittee with a frequency of not less than once per operating shift.

The permittee shall keep a log of the observations required by this condition and any related corrective actions.

(Condition #365 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

369. The dryer/cooler fabric filter shall be operated such that, at all times of required operation, the fabric filter differential pressure is equal to or greater than the manufacturer's minimum recommendation or a rate otherwise approved by the Piedmont Regional Office. To ensure good performance, the fabric filter differential pressure monitoring device shall be observed by the permittee with a frequency of not less than once per operating shift. The permittee shall keep a log of the observations required by this condition and any related corrective actions.

(Condition #366 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

370. Each emission unit subject to Condition #361 or #362 shall be observed visually at least once each operating month for at least a brief time period to determine which emissions units have normal visible emissions (does not include condensed water vapor/steam), unless a 40 CFR 60 Appendix A Method 9 visible emissions evaluation is performed on the emissions unit. Each emissions unit observed having above normal visible emissions shall be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded.

(9VAC5-80-110)

Recordkeeping

371. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to:

- a. The annual throughput of ammonium sulfate to the SULF-N26 pilot plant, calculated monthly as the sum of each consecutive 12-month period.
- b. The annual production of SULF-N26 from the SULF-N26 pilot plant, calculated monthly as the sum of each consecutive 12-month period.
- c. Records of the initial performance test required by Condition #363.
- d. Records of the monitoring data, calibration checks, deviations and corrective actions required by Conditions #364-369.
- e. Records of the visible emission observations, visible emission evaluations and corrective actions required by Condition #370.
- f. Emission factors and any other information necessary to demonstrate compliance with the emission limits of Conditions #356-360.
- g. Inventory of spare parts to minimize durations of air pollution control equipment breakdowns.
- h. Written operating procedures for all process equipment and air pollution control equipment.
- i. Operator training records.

- j. Scheduled and unscheduled maintenance records for all process equipment and air pollution control equipment.

These records shall be available for inspection by the DEQ and shall be current for the most recent five (5) years.

(Condition #368 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Reporting

372. The permittee shall furnish written notification to the Piedmont Regional Office of:

- a. The actual date on which construction of the SULF-N26 pilot plant commenced within 10 days after such date.
- b. The actual start-up date of the SULF-N26 pilot plant within 10 days after such date.
- c. The anticipated date of performance tests of the SULF-N26 pilot plant postmarked at least thirty (30) days prior to such date.

(Condition #367 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

373. The permittee shall report the results of any 40 CFR Part 60 Appendix A Method 9 opacity test performed as a result of Condition #370. If the test indicates the facility is out of compliance with a standard contained in Conditions #361 or #362, the source shall also report the length of time associated with any exceedance of the standard and the corrective actions taken to correct the exceedance. This report shall be sent to the Piedmont Regional Office within seven days of the applicable test unless otherwise noted in Condition #460.

(9VAC5-80-110)

AREA 14 AND HONEYWELL SPECIALTY PRODUCTS PLANT

Limitations

Control Equipment Requirements

374. The permittee shall comply with best available control technology (BACT) requirements for volatile organic compound (VOC) emissions from the Honeywell Specialty Products plant by:

- a. At all times, except during periods when the Trane thermal VOC incinerator (FU-14) is unavailable due to a startup, shutdown, or malfunction (SSM) event as defined by 40 CFR 63 Subpart FFFF, controlling emissions from the process vents and storage tanks indicated below in the Trane thermal VOC incinerator (FU-14):
 - i. The Honeywell Specialty Products Multi-Purpose Oximation Process (except for HT-187, VT-603, VT-616, VT-757 and the acetaldehyde (AA) / methyl isobutyl ketone (MIBK) / methyl propyl ketone (MPK) unloading and storage facility); and
 - ii. The Honeywell Specialty Products MEKO Manufacturing Process (except for VT-779, VT-787 and VT-788);

- b. During periods when the Trane thermal VOC incinerator (FU-14) is unavailable due to a startup, shutdown, or malfunction (SSM) as defined by 40 CFR 63 Subpart FFFF, complying with the applicable requirements of 9VAC5-20-180 and controlling such emissions as indicated below:
 - i. For the Honeywell Specialty Products Multi-Purpose Oximation Process (except for HT-187, VT-603, VT-616, VT-757 and the acetaldehyde (AA) / methyl isobutyl ketone (MIBK) / methyl propyl ketone (MPK) unloading and storage facility), VOC emissions shall be minimized in accordance with the 40 CFR 63 Subpart FFFF requirements for Group 2 continuous process vents and by venting the emissions to flare IN-1;
 - ii. For the Honeywell Specialty Products MEKO Manufacturing Process (except for VT-779, VT-787 and VT-788), VOC emissions shall be minimized VOC emissions shall be minimized in accordance with 9VAC5-20-180 and shall not exceed 6.0 lbs/hr;
 - c. When any process gas streams are being fed to the Trane thermal VOC incinerator (FU-14), the incinerator shall have a minimum VOC destruction efficiency of 98%, and the incinerator shall be maintained at a minimum temperature established in accordance with Condition #375.
(40 CFR 63 Subpart FFFF, Condition #2 of the 1/31/2014 NSR Permit and 9VAC5-80-110)
375. The permittee shall establish the minimum combustion chamber temperature for FU-14 during the performance test required by Condition #391. Prior to the performance test required by Condition #391, the permittee shall operate the FU-14 with a minimum combustion chamber temperature of 1400 °F (760 °C). After the initial performance test required by Condition #391, the permittee shall operate FU-14 in accordance with the minimum combustion chamber temperature established during the performance test which demonstrates compliance with both the VOC emission standard of Condition #374.c and the VOC emission limits of Condition #386 as approved by the Piedmont Regional Office.
(Condition #3 of the 1/31/2014 NSR Permit and 9VAC5-80-110)
376. Volatile organic compound emissions from fugitive equipment leaks from the Honeywell Specialty Products Multi-Purpose Oximation process shall be controlled by a Leak Detection and Repair (LDAR) Program.
(Condition #4 of the 1/31/2014 NSR Permit and 9VAC5-80-110)
377. Volatile organic compound emissions from storage tanks VT-215 and VT-217 shall be controlled by a packed tower scrubber (TW-74) operating with a Total Resource Effectiveness (TRE) value of greater than 1.0. The scrubber system shall operate at a pressure drop determined during the initial performance test.
(Condition #5 of the 1/31/2014 NSR Permit, Condition #E.5 of the 3/26/1997 RACT Agreement and 9VAC5-80-110)
378. Volatile organic compound emissions from storage tank HT-187 in the Honeywell Specialty Products multi-purpose oximation process shall be controlled by being designed and operated as a pressure tank maintaining working pressure sufficient at all times to prevent vapor loss to the atmosphere.
(9VAC5-40-3440 A, Condition #6 of the 1/31/2014 NSR Permit and 9VAC5-80-110)
379. Fugitive VOC emissions resulting from equipment leaks in those portions of Area 14 not already subject to fugitive emissions requirements from other applicable regulations shall be controlled through a Leak Detection and Repair (LDAR) program. The LDAR program shall be substantively equivalent to the LDAR requirements specified in 40 CFR 60, Subpart VV.
(Condition #E.7 of the 3/26/1997 RACT Agreement and 9VAC5-80-110)

Throughput Limits

380. The permittee shall combust no solid or hazardous waste in FU-14.
 (Condition #9 of the 1/31/2014 NSR Permit and 9VAC5-80-110)
381. The combined annual production of crude and distilled MEKO from the Area 14 MEKO manufacturing process and the Honeywell Specialty Products MEKO manufacturing process shall not exceed 20,000 and 15,000 tons, respectively, calculated as the sum of each consecutive 12-month period.
 (Condition #10 of the 1/31/2014 NSR Permit and 9VAC5-80-110)
382. The annual production of MEKO from the Honeywell Specialty Products multi-purpose oximation process shall not exceed 4,000 tons, calculated as the sum of each consecutive 12-month period.
 (Condition #11 of the 1/31/2014 NSR Permit and 9VAC5-80-110)
383. The combined annual production of MIBKO and 2-PO from the Honeywell Specialty Products multi-purpose oximation process shall not exceed 5,500 tons, calculated as the sum of each consecutive 12-month period.
 (Condition #12 of the 1/31/2014 NSR Permit and 9VAC5-80-110)
384. The production of AAO from the Honeywell Specialty Products multi-purpose oximation process shall not exceed 8,646 tons/yr (as 100% AAO). Annual production shall be calculated as the sum of each consecutive 12-month period.
 (Condition #13 of the 1/31/2014 NSR Permit and 9VAC5-80-110)

Emission Limitations

385. Emissions from the operation of the Area 14 Methyl Ethyl Ketoxime manufacturing process shall not exceed the limits specified below:

VOC	4.5 lbs/hr	2.3 tons/yr
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Compliance shall be determined as stated in Condition #383.
 (Condition #14 of the 1/31/2014 NSR Permit and 9VAC5-80-110)

386. Emissions from the Trane Thermal VOC Incinerator (FU-14) shall not exceed the limits specified below:

Particulate Matter	0.73 lbs/hr	3.2 tons/yr
Particulate Matter (PM-10)	0.73 lbs/hr	3.2 tons/yr
Sulfur Dioxide	10.0 lbs/hr	43.8 tons/yr
Nitrogen Oxides	25.0 lbs/hr	87.1 tons/yr
VOC	0.08 lbs/hr	0.35 tons/yr

(Condition #15 of the 1/31/2014 NSR Permit and 9VAC5-80-110)

387. Fugitive emissions from the pumps, valves and flanges at the Area 14 Methyl Ethyl Ketoxime manufacturing process shall not exceed the limits specified below:

VOC	1.8 lbs/hr	7.9 tons/yr
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These emissions are derived from the estimated overall emission contribution and are included for emission inventory purposes. Compliance shall be determined as stated in Condition #383.
(Condition #16 of the 1/31/2014 NSR Permit and 9VAC5-80-110)

388. Emissions from the Honeywell Specialty Products multi-purpose oximation process cooling tower (TW-77) shall not exceed the limits specified below:

Particulate Matter	19.6 lbs/hr	8.4 tons/yr
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Particulate Matter (PM-10)	19.6 lbs/hr	8.4 tons/yr
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These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance shall be determined as stated in Condition #395.e.
(Condition #17 of the 1/31/2014 NSR Permit and 9VAC5-80-110)

389. Visible emissions from the Trane Thermal Incinerator (FU-14) shall not exceed 20 percent opacity, except for one six-minute period in any one hour of not more than 30 percent opacity.
(Condition #18 of the 1/31/2014 NSR Permit and 9VAC5-80-110)

MON Process Requirements

390. The permittee shall operate any applicable Area 14 equipment and any applicable Honeywell Chemicals Area equipment in compliance with the requirements of 40 CFR 63 Subparts A and FFFF.
(40 CFR 63 Subparts A and FFFF and 9VAC5-80-110)

Monitoring

391. Initial performance tests shall be conducted for VOC from FU-14 to determine compliance with the emission limits contained in Conditions #374 and #386. At the same time, performance tests shall be conducted for VOC at the inlet of FU-14, and the control efficiency shall be calculated from the test results. The tests shall be performed, and demonstrate compliance, within 180 days from the date of this permit. Tests shall be conducted and reported and the data shall be reduced as set forth in 9VAC5-50-30, and the test methods and procedures contained in each applicable section or subpart listed in 9VAC5-50-410. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. Two copies of the test results shall be submitted to the Piedmont Regional Office within 45 days after test completion and shall conform to the test report format enclosed with this permit unless another report format is approved by the Piedmont Regional Office prior to report submittal.
(Condition #19 of the 1/31/2014 NSR Permit and 9VAC5-80-110)
392. The Trane thermal incinerator (FU-14) shall be equipped with a temperature monitoring device to continuously monitor the temperature of the incineration chamber.
(Condition #2 of the 1/31/2014 NSR Permit and 9VAC5-80-110)

393. The packed tower scrubber (TW-74) shall be equipped with a liquid flow meter and a device to continuously measure the differential pressure through the scrubber.
(Condition #5 of the 1/31/2014 NSR Permit and 9VAC5-80-110)
394. The Trane Thermal Incinerator (FU-14) shall be observed visually at least once each operating week for at least a brief time period to determine which emissions units have normal visible emissions (does not include condensed water vapor/steam), unless a 40 CFR 60 Appendix A Method 9 visible emissions evaluation is performed on the emissions unit. Each emissions unit observed having above normal visible emissions shall be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded.
(9VAC5-80-110)

Recordkeeping

395. The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to:
- a. The monthly production/throughput of MEKO from the Area 14 MEKO manufacturing process, the Honeywell Specialty Products MEKO manufacturing process and the Honeywell Specialty Products Multi-Purpose Oximation process.
 - b. The combined monthly production of MIBKO and 2-PO.
 - c. The monthly production/throughput of AAO.
 - d. FU-14 natural gas combustion rates, emission factors, fugitive component inventories, hours in VOC service and any other information necessary to demonstrate compliance with the emission limits of Conditions #385-387.
 - e. Annual total dissolved solids test results from the Honeywell Specialty Products cooling tower (TW-77) water to be used to determine compliance with the emission limits in Condition #388.
 - f. Documentation that each storage tank listed in Condition #378 is designed and operated as a pressure tank.
 - g. All Group 2 continuous process vent monitoring records required by 40 CFR 63 Subpart FFFF.
 - h. Results of the performance test required by Condition #391.
 - i. The Leak Detection and Repair records required by Conditions #376 and #379 as well as records which indicate the inspection frequency for equipment leaks in the Honeywell Chemicals Multi-Purpose Oximation process and, where leaks are detected, records which indicate the time required to repair the detected leak.
 - j. For TW-74, all daily periods of operation, calculated on a rolling average, in which the average pressure drop is more than 0.19 psig above the pressure drop determined during the initial performance test and an explanation provided for each such temperature excursion.

- k. For FU-14, data from the continuous temperature monitoring device required by Condition #392 demonstrating compliance with Condition #375.
- l. The results of the monthly visible emission surveys required by Condition #394 and details of any corrective action taken as a result of these inspections.
- m. A maintenance schedule for all process equipment including pumps, valves and flanges, and air pollution control equipment.
- n. Scheduled and unscheduled maintenance records for all process equipment and air pollution control equipment.
- o. Inventory of spare parts to minimize the duration of air pollution control equipment breakdowns.
- p. Written operating procedures for all process equipment and air pollution control equipment.
- q. Operator training records.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years.

(Condition #E.29 of the 3/26/1997 RACT Agreement, Conditions #4 and #21 of the 1/31/2014 NSR Permit, and 9VAC5-80-110)

Reporting

396. The permittee shall furnish written notification to the Piedmont Regional Office of:

- a. The anticipated date of the performance test of FU-14 postmarked at least 30 days prior to such date or as arranged with the Piedmont Regional Office.

(Condition #20 of the 1/31/2014 NSR Permit and 9VAC5-80-110)

397. The permittee shall report the results of any 40 CFR Part 60 Appendix A Method 9 opacity test performed as a result of Condition #394. If the test indicates the facility is out of compliance with the standard contained in Condition #390, the source shall also report the length of time associated with any exceedance of the standard and the corrective actions taken to correct the exceedance. This report shall be sent to the Piedmont Regional Office within seven days of the applicable test unless otherwise noted in Condition #460.

(9VAC5-80-110)

Compliance Assurance Monitoring

398. The permittee shall implement an approved Compliance Assurance Monitoring (CAM) Plan to monitor the flares controlling VOC emissions from the Area 6, the Kellogg primary reformer controlling VOC emissions from A6-Hydro, the mist eliminators controlling PM-10 emissions from the Area 9 disulfonate towers, the time tanks controlling NOx emissions from TW-22 and TW-32, the packed bed scrubbers controlling NOx emissions from TW-23 and TW-33, the thermal oxidizer controlling VOC emissions from Areas 7 and 8, the scrubbers controlling PM-10 emissions from RD-3, RD-4, RD-6, RD-7, Building 12, SC-

65, SC-66, SC-67 and CO-225, the baghouse controlling PM-10 emissions from Building 12 and EL-25, the scrubber controlling SO₂ emissions from the SAP, the mist eliminator controlling PM-10 emissions from the SAP, the compressor controlling NO_x emissions from FU-1, the fabric filter controlling PM-10 emissions from FU-17 and the flue gas recirculation system controlling NO_x emissions from FU-17. For the purposes of this permit,

VOC from various Area 6 emission units is referred to as “PSEU A”,
VOC from A6-Hydro is referred to as “PSEU B”,
PM-10 from TW-62 is referred to as “PSEU C”,
PM-10 from TW-9 is referred to as “PSEU D”,
PM-10 from TW-18 is referred to as “PSEU E”,
PM-10 from TW-23 is referred to as “PSEU F”,
PM-10 from TW-33 is referred to as “PSEU G”,
NO_x from TW-22 is referred to as “PSEU H”,
NO_x from TW-32 is referred to as “PSEU I”,
NO_x from TW-23 is referred to as “PSEU J”,
NO_x from TW-33 is referred to as “PSEU K”,
VOC from various Area 7 and Area 8 emission units is referred to as “PSEU L”,
PM-10 from RD-3 is referred to as “PSEU M”,
PM-10 from RD-4 is referred to as “PSEU N”,
PM-10 from RD-6 is referred to as “PSEU O”,
PM-10 from RD-7 is referred to as “PSEU P”,
PM-10 from Building 12, SC-65, SC-66, SC-67 and CO-225 is referred to as “PSEU Q”,
PM-10 from Building 12 and EL-25 is referred to as “PSEU R”,
SO₂ from the SAP is referred to as “PSEU S”,
PM-10 from the SAP is referred to as “PSEU T”,
NO_x from FU-1 is referred to as “PSEU U”,
PM-10 from FU-17 is referred to “PSEU V”,
NO_x from FU-17 is referred to “PSEU W”,

with the acronym PSEU standing for Pollutant Specific Emissions Unit. The approved monitoring plans shall be the attached CAM Plans (Attachment A-1 for PSEUs A-B; Attachment A-2 for PSEUs C-K; Attachment A-3 for PSEU L; Attachment A-4 for PSEUs M-R; Attachment A-5 for PSEUs S-T; Attachment A-6 for PSEU U; Attachment A-7 for PSEUs V-W) or the most recent revision to each plan that has been: (1) developed and approved pursuant to 40 CFR 64.7(e) and Condition #398 of this permit; (2) revised pursuant to a Quality Improvement Plan in accordance with 40 CFR 64.8 and Condition #398 of this permit; or (3) otherwise approved by the DEQ conforming with Condition #398 of this permit, including, but not limited to, changes initiated by DEQ.
(40 CFR 64.6(c) and 9VAC5-80-110)

399. Each monitoring approach shall be designed and implemented in compliance with 40 CFR 64.3(b) or (d). If a monitoring approach uses a monitoring device, the device shall be operated according to manufacturer's specifications, unless other methods are approved, and in compliance with 40 CFR 64.3(b) or (d). The approved CAM Plan shall include, at a minimum, the following information:
- a. Indicator;
 - b. Measurement Approach;
 - c. Indicator Range or Condition(s) for Range Development; and

- d. The following performance criteria:
- i. Data Representativeness;
 - ii. Verification of Operational Status;
 - iii. QA/QC Practices and Criteria;
 - iv. Monitoring Frequency;
 - v. Data Collection Procedures; and
 - vi. Averaging Period

Changes to a CAM Plan pertaining to the information in this condition require prior approval by the DEQ and may require public participation according to the requirements of 9VAC5-80-230.
(40 CFR 64.6(c) and 9VAC5-80-110)

400. The permittee shall conduct the monitoring and fulfill the other obligations specified in 40 CFR 64.7 through 40 CFR 64.9.
(40 CFR 64.6(c) and 9VAC5-80-110)
401. If a monitoring approach uses a monitoring device, at all times, the permittee shall maintain the monitoring equipment, including, but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment.
(40 CFR 64.7(b) and 9VAC5-80-110)
402. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the permittee shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the PSEU is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for purposes of compliance assurance monitoring, including data averages and calculations, or fulfilling a minimum data availability requirement, if applicable. The permittee shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by inadequate maintenance or improper operation are not malfunctions.
(40 CFR 64.7(c) and 9VAC5-80-110)
403. Upon detecting an excursion or exceedance, the permittee shall restore operation of the PSEU (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup and shutdown conditions). Such actions may include initial inspection and evaluation, recording that operations returned to normal without operator action (such as through response by a computerized distribution control system), or any

necessary follow-up actions to return operation to within the indicator, designated condition, or below the applicable emission limitation or standard, as applicable.
(40 CFR 64.7(d)(1) and 9VAC5-80-110)

404. Determination that acceptable procedures were used in response to an excursion or exceedance will be based on information available, which may include but is not limited to, monitoring results, review of operation and maintenance procedures and records, and inspection of the control device, associated capture system, and the process.
(40 CFR 64.7(d)(2) and 9VAC5-80-110)
405. If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly (in accordance with Condition #460) notify the Piedmont Regional Office and submit a revised CAM Plan for approval to the Piedmont Regional Office to address the necessary monitoring changes. Such a modification may include, but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters.
(40 CFR 64.7(e), 40 CFR 64.6(c) and 9VAC5-80-110)
406. If the number of exceedances or excursions exceeds 5 percent duration of the operating time for a PSEU for a semiannual reporting period, the permittee shall develop, implement and maintain a Quality Improvement Plan (QIP) in accordance with 40 CFR 64.8. If a QIP is required, the permittee shall have it available for inspection. The QIP initially shall include procedures for evaluating the control performance problems and, based on the results of the evaluation procedures, the permittee shall modify the plan to include procedures for conducting one or more of the following, as appropriate:
- a. Improved preventative maintenance practices;
 - b. Process operation changes;
 - c. Appropriate improvements to control methods;
 - d. Other steps appropriate to correct control performance; and
 - e. More frequent or improved monitoring.
- (40 CFR 64.8(a-b) and 9VAC5-80-110)
407. Monitoring imposed under 40 CFR Part 64 shall not excuse the permittee from complying with any existing requirements under federal, state, or local law, or any other applicable requirement under the Act, as described in 40 CFR 64.10.
(40 CFR 64.10 and 9VAC5-80-110)
408. The permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written QIP required pursuant to 40 CFR 64.8 and any activities undertaken to implement a QIP, and other supporting information required to be maintained under 40 CFR Part 64 (such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions).
(40 CFR 64.9(b) and 9VAC5-80-110)

409. The permittee shall submit CAM reports for each PSEU as part of the Title V semi-annual monitoring reports required by Condition #457 of this permit to the Piedmont Regional Office. Each report shall include at a minimum:
- a. Identification of the PSEU for which the report is made;
 - b. Summary information on the number, duration and cause (including unknown cause, if applicable) of excursions or exceedances, as applicable, and the corrective actions taken;
 - c. Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero and span or other daily calibration checks, if applicable); and
 - d. A description of the actions taken to implement a QIP during the reporting period as specified in 40 CFR 64.8. Upon completion of a QIP, the owner or operator shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions or exceedances occurring.
- (40 CFR 64.9(a) and 9VAC5-80-110)

NO_x Budget Program for Nonelectric Generating Units Requirements

General Conditions

410. **NO_x Budget Program Requirements** – For NO_x Budget sources required to have a Title V operating permit approval, the NO_x budget portion of the Title V permit shall be administered in accordance with the permitting authority's Title V operating permits regulations. This section of the permit document represents the NO_x Budget Permit approval.

Each NO_x Budget permit approval shall contain all applicable NO_x Budget Program requirements and shall be a complete and segregable portion of the permit approval.

The NO_x Budget Permit approval will be administrated by the Board under the authority of 9VAC5-80-360 et seq., and 9VAC5-140-10 et seq.
(9VAC5-80-110 and 9VAC5-140-40)

411. **NO_x Budget Program Requirements – Facility NO_x Budget Units** - A review of the air emission units included in this permit approval has determined that the equipment listed in Table 1 meets the definition of a "NO_x Budget Unit" as described in 9VAC5-140-40. Any source that includes one or more such units shall be a "NO_x Budget source."

Table 1. Facility NO_x Budget Units

ORIS Code	Unit ID	Unit Name and description	Maximum Heat Capacity (MMBtu/hr)	Maximum Generation Capacity (megawatts)
880093	10D	FU-17 – Natural Gas, No. 2 Fuel Oil, or Residue-Fired Steam Generating Industrial Boiler	275.2	--
880093	10E	FU-18 – Natural Gas-Fired Steam Generating Industrial Boiler	350	--
880093	10F	FU-19 – Natural Gas-Fired Steam Generating Industrial Boiler	350	--

(9VAC5-80-110 and 9VAC5-140-40)

412. **NO_x Budget Program Requirements – Low Mass Emission Units (LME)** - The emission unit(s) in Table 2 have been determined to meet the NO_x Budget unit applicability requirements as provided in 9VAC5-140-40 and the applicability requirements to be considered a LME unit(s) as provided in 40 CFR 75.19.

To maintain the LME classification for gas-fired or oil-fired units, the owner must meet the applicable general operating requirements of 40 CFR 75.10 and the applicable requirements of 40 CFR.19. Once a LME unit has qualified for and has started using the LME excepted methodology, an annual demonstration is required, showing that the unit(s) continues to emit no more than 100 tons of NO_x annually (October 1 thru September 31) *and* no more than 50 tons of NO_x during the ozone control period (May 1 thru September 30) per 40 CFR 19(a)(1)(i)(A). The annual demonstration is provided by using one of the allowable methodologies in 40 CFR 75.19 (c).

Table 2. Facility NO_x Budget Low Mass Emission (LME) Units

ORIS Code	Unit ID	Unit Name and description	Maximum Heat Capacity (MMBtu/hr)	Maximum Generation Capacity (megawatts)
		None.		

(9VAC5-80-110, 9VAC5-140-710 and 40 CFR 75)

413. **NO_x Budget Program Requirements – Retired Unit Exemption** - The equipment in Table 3 has met the retired unit exemption requirements the NO_x Budget program as described in 9VAC5-140-50 B. 1. The retired unit exemption described in this condition shall become effective the day on which the unit is permanently retired. Within 30 days of permanent retirement, the NO_x authorized account representative shall submit a statement to DEQ and EPA detailing that the unit(s) is permanently retired and will comply with the requirements of 9VAC5-140-50 C, including, but not limited to:

A unit exempt from the NO_x Budget Program shall not emit any nitrogen oxides, starting on the date that the exemption takes effect; and

For a period of five years from the date the records are created, the owners and operators of a unit exempt under 9VAC5-140-50 shall retain at the source that includes the unit, records demonstrating that the unit is permanently retired. Owners and operators bear the burden of proof that the unit is permanently retired.

Table 3. NO_x Budget Retirement Exemption Units

ORIS Code	Unit ID	Unit Name and description
880093	10A	FU-7 – Retired Unit/Inactive
880093	10B	FU-9 – Retired Unit/Inactive
880093	10C	FU-8 – Inactive unit, onsite but not operational

(9VAC5-80-110 and 9VAC5-140-50)

Monitoring

414. NO_x Budget Program Requirements

- a. Owners and operators, and to extent applicable, the NO_x authorized account representative of a NO_x Budget unit shall comply with the monitoring requirements as provided in 9VAC5-140-700 et. seq. and in Subpart H of 40 CFR Part 75.
- b. The owner or operator of each NO_x Budget unit shall meet the following requirements:
 - i. Install all monitoring systems required under this article for monitoring NO_x mass. This includes all systems required to monitor NO_x emission rate, NO_x concentration, heat input, and flow, in accordance with 40 CFR 75.71 and 40 CFR 75.72.
 - ii. Install all monitoring systems for monitoring heat input.
 - iii. Successfully complete all certification tests required under 9VAC5-140-710 and meet all other provisions of this article and 40 CFR Part 75 applicable to the monitoring systems listed above in b. 1) and b. 2) in this condition (9VAC-140-700 B. 1 and 2).
 - iv. Record, and report data from the monitoring systems under b. 1) and b. 2) of this condition (9VAC-140-700 B. 1 and 2).
- c. The owner or operator shall meet the requirements of b. 1) through b. 3) (9VAC-140-700 B. 1, B. 2, and B. 3) of this condition on or before September 10, 2019 and shall record and report data on and after the following date: May 1, 2020.
- d. The owner or operator of a NO_x Budget unit under 9VAC5-140-700 C. 2., C. 3., or C. 4. shall determine, record, and report NO_x mass emissions, heat input rate, and any other values required to determine NO_x mass emissions in accordance with 40 CFR 75.70(g), from the date and hour that the unit starts operating until the date and hour on which the continuous emission monitoring system, excepted monitoring system under Appendix D or E of 40 CFR Part 75, or excepted monitoring methodology under 40 CFR 75.19 is provisionally certified.

e.

- i. No owner or operator of a NO_x Budget unit or a non-NO_x Budget unit monitored under 40 CFR 75.72(b)(2)(ii) shall use any alternative monitoring system, alternative reference method, or any other alternative for the required continuous emission monitoring system without having obtained prior written approval in accordance with 9VAC5-140-750.
- ii. No owner or operator of a NO_x Budget unit or a non-NO_x Budget unit monitored under 40 CFR 75.72(b)(2)(ii) shall operate the unit so as to discharge, or allow to be discharged, NO_x emissions to the atmosphere without accounting for all such emissions in accordance with the applicable provisions of 9VAC5-140-700 and 40 CFR Part 75 except as provided in 40 CFR 75.74.
- iii. No owner or operator of a NO_x Budget unit or a non-NO_x Budget unit monitored under 40 CFR 75.72(b)(2)(ii) shall disrupt the continuous emission monitoring system, any portion thereof, or any other approved emission monitoring method, and thereby avoid monitoring and recording NO_x mass emissions discharged into the atmosphere, except for periods of recertification or periods when calibration, quality assurance testing, or maintenance is performed.
- iv. No owner or operator of a NO_x Budget unit or a non-NO_x Budget unit monitored under 40 CFR 75.72(b)(2)(ii) shall retire or permanently discontinue use of the continuous emission monitoring system, any component thereof, or any other approved emission monitoring system under this article except for under the following circumstances:

(1) A retired unit exemption goes into effect;

(2) The owner or operator is monitoring emissions from the unit with another certified monitoring system that has been approved by the permitting authority; or

(3) The NO_x authorized account representative submits notification of the date of certification testing of a replacement monitoring system in accordance with 9VAC5-140-710 A. 2.

(9VAC5-80-110 and 9VAC5-140-700)

415. **NO_x Budget Program Requirements** – Initial Certification and Recertification Procedures for Emission Monitoring Systems

- a. The owner or operator of a NO_x Budget unit shall comply with the following initial certification and recertification procedures:

Table 4. Certification and Recertification Procedures

Unit Type	Initial Certification and Recertification Procedures
NO_x Budget Unit	9VAC5-140-710 A.
NO_x Budget Unit Qualified for Low Mass Emission Monitoring (qualifies for LME monitoring methodology under 40 CFR 75.19)	9VAC5-140-710 A. 9VAC5-140-710 B.
NO_x Budget Unit Approved for Alternative Monitoring (unit qualifies under Subpart E of 40 CFR Part 75)	9VAC5-140-710 A. 9VAC5-140-710 C.

- b. Whenever the owner or operator installs a monitoring system in order to meet the requirements of the NO_x Budget Program where no such emission monitoring system was previously installed, initial certification is required.
- c. Whenever the owner or operator makes a replacement, modification, or change in a certified emission monitoring system that may significantly affect the ability of the system to accurately measure or record NO_x mass emissions or heat input rate or to meet the requirements of 40 CFR 75.21 or Appendix B to 40 CFR Part 75, the owner or operator shall recertify the emission monitoring system.
- d. Whenever the owner or operator makes a replacement, modification or change to the flue gas handling system or the unit's operation that may significantly change the stack flow or concentration profile, the owner or operator shall recertify the continuous emissions monitoring system.
- e. The NO_x authorized account representative shall submit to the permitting authority, the EPA Region III Office, and the Administrator a written notice of the dates of certification in accordance with 9VAC5-140-730.
(9VAC5-80-110 and 9VAC5-140-710)

416. **NO_x Budget Program Requirements** - Initial Certification and Recertification Procedures for Emission Monitoring Systems - The NO_x authorized account representative shall submit an application to the permitting authority within 45 days after completing all initial certification or recertification tests required under 9VAC5-140-710 including information required under Subpart H of 40 CFR Part 75.
(9VAC5-80-110 and 9VAC5-140-740 C.)

Recordkeeping and Reporting

417. **NO_x Budget Program Requirements** – The NO_x authorized account representative shall follow the recordkeeping and reporting requirements as described in 9VAC5-140-100 E.1. and 40 CFR 75.73.
(9VAC5-80-110 and 9VAC5-140-740 A.)
418. **NO_x Budget Program Requirements** - Unless otherwise provided, the owners and operators of the NO_x Budget source and each NO_x Budget unit at the source shall keep on site at the source each of the following documents for a period of five years from the date the document is created. This period may be extended for cause, at any time prior to the end of five years, in writing by the permitting authority or the administrator.

- a. The account certificate of representation for the NO_x authorized account representative for the source and each NO_x Budget unit at the source and all documents that demonstrate the truth of the statements in the account certificate of representation, in accordance with 9VAC5-140-130; provided that the certificate and documents shall be retained on site at the source beyond such five-year period until such documents are superseded because of the submission of a new account certificate of representation changing the NO_x authorized account representative.
- b. All emissions monitoring information, in accordance with 9VAC5-140-700 et seq. of this part; provided that to the extent that 9VAC5-140-700 et seq. provides for a three-year period for recordkeeping, the three-year period shall apply.
- c. Copies of all reports, compliance certifications, and other submissions and all records made or required under the NO_x Budget Program.
- d. Copies of all documents used to complete a NO_x Budget permit application and any other submission under the NO_x Budget Program or to demonstrate compliance with the requirements of the NO_x Budget Program.

(9VAC5-80-110 and 9VAC5-140-60 C.1)

419. **NO_x Budget Program Requirements** - The NO_x authorized account representative of a NO_x Budget source and each NO_x Budget unit at the source shall submit the reports and compliance certifications required under the NO_x Budget Program, including those under 9VAC5-140-700 et seq. and in Subpart H of 40 CFR Part 75.
(9VAC5-80-110, 9VAC5-140-60 C.2, and 9VAC5-140-700)
420. **NO_x Budget Program Requirements** - The owner or operator of a unit shall comply with requirements of 40 CFR 75.62 (Monitoring plan submittals), except that the monitoring plan is only required to include the information required by Subpart H of 40 CFR Part 75.
(9VAC5-80-110 and 9VAC5-140-740 B.)
421. **NO_x Budget Program Requirements** – The NO_x authorized account representative shall submit quarterly reports as follows:
- a. If owner or operator of a NO_x Budget unit chooses to meet the annual reporting requirements of Article 8 of 9VAC5-140, the NO_x authorized account representative shall submit a quarterly report, documenting the NO_x mass emissions from the unit(s) per the guidelines of 9VAC5-140-740 D. ;
 - b. The NO_x authorized account representative shall either:
 - i. Meet all of the requirements of 40 CFR Part 75 related to monitoring and reporting NO_x mass emissions during the entire year and meet the reporting deadlines specified in 9VAC5-140-740 D. 1; or
 - ii. Submit quarterly reports, documenting NO_x mass emissions from the unit(s), only for the period from May 1 through September 30 of each year and including the data described in 40 CFR 75.74 (c)(6). The NO_x authorized account representative shall submit quarterly reports per the guidelines of 9VAC5-140-740 D. 2. (b).

- c. The NO_x authorized account representative shall submit each quarterly report to the administrator within 30 days following the end of the calendar quarter covered by the report. Quarterly reports shall be submitted in the matter specified in Subpart H of 40 CFR Part 75 and 40 CFR 75.64. (9VAC5-80-110 and 9VAC5-140-740 D.)

Testing

422. **NO_x Budget Program Requirements** - The permitted facility shall be constructed so as to allow for emissions testing at any time using appropriate methods. Upon request from the Department, test ports will be provided at the appropriate locations. (9VAC5-80-110 and 9VAC5-50-30)
423. **NO_x Budget Program Requirements** - If testing is conducted in addition to the monitoring specified in this permit, the permittee shall use the following test methods in accordance with test method procedures approved by the DEQ:

Table 5. Test Methods

Pollutant or Stack Parameter	CEM Certification Test Method 40 CFR 60
Nitrogen Oxides (NO _x)	USEPA Method 7E
Oxygen (O ₂)	USEPA Method 3a

(9VAC5-80-110, 9VAC5-140-700)

Liability

424. **NO_x Budget Program Requirements** – The following requirements concerning liability shall apply:
- Any person who knowingly violates any requirement or prohibition of the NO_x Budget Program, a NO_x Budget permit, or an exemption under 9VAC5-140-50 shall be subject to enforcement pursuant to applicable State or Federal law.
 - Any person who knowingly makes a false material statement in any record, submission, or report under the NO_x Budget Program shall be subject to criminal enforcement pursuant to the applicable State or Federal law.
 - No permit revision shall excuse any violation of the requirements of the NO_x Budget Program that occurs prior to the date that the revision takes effect.
 - NO_x Budget source and each NO_x Budget unit shall meet the requirements of the NO_x Budget Program.
 - Any provision of the NO_x Budget Program that applies to a NO_x Budget source or the NO_x authorized account representative of a NO_x Budget source shall also apply to the owners and operators of such source and of the NO_x Budget units at the source.
 - Any provision of the NO_x Budget Program that applies to a NO_x Budget unit or the NO_x authorized account representative of a NO_x Budget unit shall also apply to the owners and operators of such unit.

Except with regard to the requirements applicable to units with a common stack under Article 8 (9VAC5-140-700 et seq.), the owners and operators and the NO_x authorized account representative of one NO_x Budget unit shall not be liable for any violation by any other NO_x Budget unit of which they are not owners or operators or the NO_x authorized account representative and that is located at a source of which they are not owners or operators or the NO_x authorized account representative.
(9VAC5-80-110 and 9VAC5-140-60 D.)

Effect on Other Authorities

425. **NO_x Budget Program Requirements** - No provision of the NO_x Budget Program, a NO_x Budget permit application, a NO_x Budget permit, or an exemption under 9VAC5-140-50 shall be construed as exempting or excluding the owners and operators and, to the extent applicable, the NO_x authorized account representative of a NO_x Budget source or NO_x Budget unit from compliance with any other provision of the applicable, approved State implementation plan, a federally enforceable permit, or the Clean Air Act.
(9VAC5-80-110 and 9VAC5-140-60 E.)

Facility Wide Conditions

Limitations

NO_x Emission Cap Requirements

426. Beginning on June 1, 2000, the total NO_x emissions from this facility shall not exceed 13,085 tons per year, calculated monthly as the sum of each previous consecutive 12-month period. The first consecutive 12-month period shall be the twelve months after June 1, 2000. Beginning on June 1, 2000, the total NO_x emissions from this facility during the time period beginning June 1 and ending September 1 of each calendar year shall not exceed 3,382 tons. These emissions totals shall be accumulated through this time period and shall be reported to the Piedmont Regional Office by November 15 of each calendar year.
(Conditions #17 and #18 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Solvent Metal Cleaning Requirements

427. The permittee shall operate any solvent metal cleaning operations (including PW-8, PW-9, PW-17, PW-26 and PW-77) in compliance with all applicable requirements of 9VAC5 Chapter 40 Article 24.
(9VAC5-40-3260 to 3400 and 9VAC5-80-110)

Consent Decree (filed March 28, 2013) Requirements

428. The permittee shall comply with the enhanced leak detection and repair (LDAR) requirements specified in Appendix A of any United States Environmental Protection Agency Consent Decree entered to resolve the Notices of Violation issued to the permittee on March 10, 2009 and August 21, 2010.
(Condition #21 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
429. Unless alternative provisions are approved by the Administrator of the EPA and the Piedmont Regional Office, the permittee shall comply with all applicable requirements of any United States Environmental Protection Agency Consent Decree entered to resolve the Notices of Violation issued to the permittee on March 10, 2009 and August 21, 2010.
(Condition #22 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

430. The projects associated with the February 19, 2015 permit result in emission increases and/or decreases of particulate matter, particulate matter (PM-10), particulate matter (PM-2.5), sulfur dioxide, nitrogen oxides (NO_x) and VOC as described in the permit application dated March 11, 2011 as amended May 5, 2011, May 22, 2011, June 10, 2011 and June 24, 2011, the permit application dated October 26, 2011 as amended November 4, 2011, November 11, 2011 and November 21, 2011, the permit application dated February 6, 2012 as amended May 30, 2012, July 18, 2012 and September 28, 2012 and the permit application dated June 14, 2013 as amended June 17, 2013. With the inclusion of the emission reductions from the installation of the selective catalytic reduction systems (SCR) referenced in Conditions #74-77 (as allowed by any United States Environmental Protection Agency Consent Decree entered to resolve the Notices of Violation issued to the permittee on March 10, 2009 and August 21, 2010), the net emission increase (as defined in 9VAC5 Chapter 80, Article 8 and calculated as demonstrated in Appendix A or the 2/19/2015 NSR Permit) of any regulated NSR pollutant from the projects associated with this permit shall not exceed an amount defined as significant by 9VAC5 Chapter 80, Article 8 in each Phase defined in Condition #96. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this net emission increase requirement. The content of and format of such records shall be arranged with the Piedmont Regional Office. The emission reductions from the installation of the SCR systems referenced in Conditions #74-77 shall not be eligible for inclusion (creditable) in determining the net emission increase resulting from any future application for the construction, reconstruction, or modification of this facility received by DEQ.
(Condition #23 of the 2/19/2015 NSR Permit and 9VAC5-80-110)
431. Unless more frequent reports are required by this permit or 40 CFR 60.7, the permittee shall submit semi-annual project reports to the Piedmont Regional Office within 30 days after the end of each semi-annual period. Each report shall include:
- For each emission unit, a list of the projects planned for that emission unit as identified in the March 11, 2011, October 26, 2011, February 6, 2012 and June 14, 2013 permit applications (as amended) and a brief description of each project.
 - The current status of each project: not begun, under construction or completed.
 - For projects which have not begun construction/implementation, the estimated start date.
 - For projects which are being implemented/constructed as of the date of the report, the estimated project completion date.
 - For projects which have already been implemented/completed, the actual implementation/completion date.
 - For each completed project, a detailed description of the project as actually completed including the actual size/capacity of the project, the overall capacity of the modified emission unit associated with the project upon completion of the project and any deviations from the project description identified in the March 11, 2011, October 26, 2011, February 6, 2012 and June 14, 2013 permit applications (as amended).
- (Condition #24 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Air Pollution Control Equipment Requirements

432. For the purposes of compliance with this permit and determining the net emission increases or decreases referenced in this condition, unless otherwise specified, the emission limits included in this permit for

particulate matter (PM-10) and particulate matter (PM-2.5) shall be applicable to both the filterable emissions and the condensable emissions, if any. Unless otherwise specified, the control equipment requirements included in this permit for particulate matter, particulate matter (PM-10) or particulate matter (PM-2.5) shall be applicable to only the filterable emissions (these conditions generally represent prior BACT determinations that did not account for condensable emissions).

(Condition #5 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

433. The permittee shall operate all control equipment in a manner consistent with good air pollution control practice such that the facility shall remain in compliance with this permit and all applicable portions of the State Air Pollution Control Board's Regulations for the Control and Abatement of Air Pollution. Each control device shall be in operation when the process controlled by the control device is operating, and all emission units and control equipment shall be provided with adequate access for inspection.
(9VAC5-80-110)

434. The permittee shall use no chromium based water treatment chemicals in any cooling tower. Chromium based water treatment chemicals shall have the meaning given them in 40 CFR 63.401.
(40 CFR 63.401, Condition #20 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Operating Practice Requirements

435. In order to minimize the duration and frequency of excess emissions due to malfunctions of process equipment or air pollution control equipment, the permittee shall:
- a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance. These records shall be maintained on site for a period of five (5) years and shall be made available to DEQ personnel upon request.
 - b. Maintain an inventory of spare parts that are needed to minimize durations of air pollution control equipment breakdowns.

(Condition #11 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

436. The permittee shall have available written operating procedures for the related air pollution control equipment. Operators shall be trained in the proper operation of all such equipment and shall be familiar with the written operating procedures. These procedures shall be based on the manufacturer's recommendations, at minimum. The permittee shall maintain records of training provided including names of trainees, date of training and nature of training.

(Condition #11 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

40 CFR 61 Subpart FF (Benzene NESHAP) Requirements

437. The permittee shall comply with the recordkeeping requirements of 40 CFR 61.356 and the reporting requirements of 40 CFR 61.357; and repeat the determination of total annual benzene quantity from facility waste whenever there is a change in the processes generating the waste that could cause the total annual benzene quantity from facility waste to increase to 1 Mg/yr (1.1 ton/yr) or more.
(40 CFR 61.355(a)(5) and 9VAC5-80-110)

Reciprocating Internal Combustion Engine (RICE) Requirements

438. As stated in 40 CFR 63.6602 and 63.6640, and as excepted in Table 2C of 40 CFR 63 Subpart ZZZZ, the permittee shall comply with the following requirements for emergency engines FP-1, FP-2, FP-3, FP-4, GEN-2 and GEN-3:
- a. Change oil and filter every 500 hours of operation or annually, whichever comes first.
 - b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first.
 - c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.
(40 CFR 63.6602 and Table 2C of 40 CFR 63 Subpart ZZZZ and 9VAC5-80-110)
439. The permittee shall operate and maintain each emergency engine (FP-1, FP-2, FP-3, FP-4, GEN-2 and GEN-3) and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop a site-specific maintenance plan which shall provide to the extent practicable for the maintenance and operation of the each emergency engine (FP-1, FP-2, FP-3, FP-4, GEN-2 and GEN-3) in a manner consistent with good air pollution control practice for minimizing emissions.
(40 CFR 63.6625(e) and 9VAC5-80-110)
440. For emergency engines FP-1, FP-2, FP-3, FP-4, GEN-2, GEN-3 and GEN-4, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in this condition, is prohibited:
- a. There shall be no time limit on the use of emergency engines FP-1, FP-2, FP-3, FP-4, GEN-2, GEN-3 and GEN-4 in emergency situations.
 - b. The permittee may operate emergency engines FP-1, FP-2, FP-3, FP-4, GEN-2, GEN-3 and GEN-4 for any combination of the purposes specified in paragraphs 40 CFR 63.6640(f)(2)(i-iii) for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraphs 40 CFR 63.6640(f)(3-4) counts as part of the 100 hours per calendar year allowed by this paragraph.
 - c. Emergency engines FP-1, FP-2, FP-3, FP-4, GEN-2, GEN-3 and GEN-4 may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in Condition #440.b. The 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.
(40 CFR 63.6640(f) and 9VAC5-80-110)
441. The permittee shall install a non-resettable hour meter on each emergency engine (FP-1, FP-2, FP-3, FP-4, GEN-2, GEN-3 and GEN-4) if one is not already installed.
(40 CFR 63.6625(f) and 9VAC5-80-110)

442. If required by Table 7 of 40 CFR 63 Subpart ZZZZ, the permittee shall submit a semi-annual compliance report as specified in Table 7 of 40 CFR 63 Subpart ZZZZ. As of the date of this permit, there are no Table 7 requirements for emergency engines.
(40 CFR 63.6650 and 9VAC5-80-110)
443. As specified in 40 CFR 63.10(b)(1), the permittee shall keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. The permittee shall keep records on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record according to 40 CFR 63.10(b)(1). The permittee can keep the records offsite for the remaining 3 years. The permittee's records shall be in a form suitable and readily available for expeditious review as specified in 40 CFR 63.10(b)(1). These records shall include, but are not limited to:
- a. Records of the maintenance conducted on each emergency engine (FP-1, FP-2, FP-3, FP-4, GEN-2, GEN-3) in order to demonstrate that the permittee operated and maintained the units and after-treatment control devices (if any) according to the maintenance plan required by Condition #439.
 - b. Records of the hours of operation of each emergency engine (FP-1, FP-2, FP-3, FP-4, GEN-2, GEN-3 and GEN-4) that is recorded through the non-resettable hour meter. The permittee shall document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. If the emergency engines (FP-1, FP-2, FP-3, FP-4, GEN-2, GEN-3 and GEN-4) are used for demand response operation, the permittee shall keep records of the notification of the emergency situation, and the time each emergency engine (FP-1, FP-2, FP-3, FP-4, GEN-2, GEN-3 and GEN-4) was operated as part of demand response.
(40 CFR 63.6655(e-f) and 9VAC5-80-110)
444. The permittee shall operate in compliance with all applicable requirements of 40 CFR 63 Subparts A and ZZZZ. Table 8 of 40 CFR 63 Subpart ZZZZ shows which parts of the General Provisions in 40 CFR 63.1 through 63.13 apply to the permittee.
(40 CFR 63 Subparts A and ZZZZ and 9VAC5-80-110)
445. Visible emissions from FP-1, FP-2, FP-3, FP-4, GEN-2, GEN-3 and GEN-4 shall not exceed 20 percent opacity, except for one six-minute period in any one hour of not more than 30% opacity. Failure to meet the requirements of this condition because of the presence of water vapor shall not be a violation of this section.
(9VAC5-50-80 and 9VAC5-80-110)
446. Each emission unit subject to Condition #445 shall be observed visually at least once each operating month for at least a brief time period to determine which emissions units have normal visible emissions (does not include condensed water vapor/steam), unless a 40 CFR 60 Appendix A Method 9 visible emissions evaluation is performed on the emissions unit. Each emissions unit observed having above-normal visible emissions shall be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded.
(9VAC5-80-110)
447. The permittee shall report the results of any 40 CFR Part 60 Appendix A Method 9 opacity test performed as a result of Condition #446. If the test indicates the facility is out of compliance with the standard contained in Condition #445, the source shall also report the length of time associated with any exceedance of the standard and the corrective actions taken to correct the exceedance. This report shall be sent to the

Piedmont Regional Office within seven days of the applicable test unless otherwise noted in Condition #460.
(9VAC5-80-110)

40 CFR 63 Subpart DDDDD (Boiler MACT) Requirements

448. The permittee shall operate in compliance with all applicable requirements of 40 CFR 63 Subparts A and DDDDD.
(9VAC5-80-110 and 40 CFR 63, Subparts A and DDDDD)

Recordkeeping Requirements

449. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Piedmont Regional Office. These records shall include but are not limited to:
- a. All production and analytical data necessary to show compliance with the removal efficiencies defined and described in conditions categorized as **Control Equipment Requirements** in this permit.
 - b. All production data necessary to show compliance with the throughput limits defined and described in conditions categorized as **Throughput Limits** in this permit.
 - c. All production and analytical data necessary to show compliance with the emissions limits defined and described in conditions categorized as **Emissions Limits** in this permit.
 - d. Copies of the results of all initial performance tests conducted consistent with the requirements of this permit and the appropriate technical and regulatory methodology defined in 40 Code of Federal Regulations Part 60 and the associated appendices.
 - e. Results of Method 9 testing performed to determine opacity in conjunction with initial performance testing and any additional testing consistent with the requirements of this permit.
 - f. Records that identify each waste stream at the facility subject to 40 CFR 61 Subpart FF, and indicate whether or not the waste stream is controlled for benzene emissions in accordance with Subpart FF.
 - g. For each waste stream not controlled for benzene emissions in accordance with 40 CFR 61 Subpart FF, records of all test results, measurements, calculations, and other documentation used to determine the following information for the waste stream: waste stream identification, water content, whether or not the waste stream is a process wastewater stream, annual waste quantity, range of benzene concentrations, annual average flow-weighted benzene concentration, and annual benzene quantity.
 - h. The results of the monthly visible emission surveys required by Condition #446 and details of any corrective action taken as a result of these inspections.
 - i. Records documenting that each solvent metal cleaning operation at the facility is in compliance with the requirements of Condition #427.

These records shall be available for inspection by the DEQ and shall be current for the most recent five (5) years.

(40 CFR 61.356(b), Condition #7 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

450. The permittee shall maintain production records sufficient to indicate the rated production capacities of the equipment described as **Existing Equipment** in Condition #2 of the February 19, 2015 NSR permit. These records shall be available for inspection by the DEQ and shall be current for the most recent five (5) years. (Condition #6 of the 2/19/2015 NSR Permit and 9VAC5-80-110)

Reporting

451. The permittee shall submit to the Piedmont Regional Office a report that updates the information listed in 40 CFR 61.357(a)(1-3) whenever there is a change in a process generating a waste stream that could cause the total annual benzene quantity from facility waste to increase to 1 Mg/yr (1.1 ton/yr) or more. Copies of reports required by condition are to be sent to:

Chief, Air Section
Enforcement & Compliance Assurance Division
Air, RCRA and Toxics Branch
US EPA Region 3
1650 Arch Street – 3ED21
Philadelphia, PA 19103

(40 CFR 61.357(b) and 9VAC5-80-110)

Testing

452. The permitted facility shall be constructed so as to allow for emissions testing and monitoring upon reasonable notice at any time, using appropriate methods. Test ports shall be provided at the appropriate locations.
(9VAC5-50-30 F and 9VAC5-80-110)
453. If testing is conducted in addition to the monitoring specified in this permit, the permittee shall use the appropriate method(s) in accordance with procedures approved by the DEQ.
(9VAC5-80-110)

INSIGNIFICANT EMISSION UNITS

The following emission units at the facility are identified in the application as insignificant emission units under 9VAC5-80-720:

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9VAC5-80-720 B)	Rated Capacity (9VAC5-80-720 C)
VT-031 VT-033 VT-099 VT-102 VT-151 VT-230 VT-252 VT-257 VT-333 VT-364 VT-401 VT-522 VT-771 VT-795 VT-796 VT-797	Miscellaneous Area 11 Storage Tanks	9VAC5-80-720 B	VOC	N/A
VT-511	Marine Operations Ammonium Carbonate Storage Tank	9VAC5-80-720 B	VOC	N/A
VT-512	Marine Operations Ammonium Carbonate Storage Tank	9VAC5-80-720 B	VOC	N/A
TW-07	Carbonate Tower	9VAC5-80-720 B	VOC	N/A
TW-11	Carbonate Tower	9VAC5-80-720 B	VOC	N/A
TW-16	Carbonate Tower	9VAC5-80-720 B	VOC	N/A
TW-21	Carbonate Tower	9VAC5-80-720 B	VOC	N/A
TW-31	Carbonate Tower	9VAC5-80-720 B	VOC	N/A
HE-221	North American 6514-8-A natural gas-fired steam superheater	9VAC5-80-720 C	N/A	4.24 MMBtu/hr
HE-305	North American 6514-8-A natural gas-fired steam superheater	9VAC5-80-720 C	N/A	4.24 MMBtu/hr
MH-1	Marine operations portable diesel-fired heater	9VAC5-80-720 C	N/A	0.15 MMBtu/hr
MH-2	Marine operations portable diesel-fired heater	9VAC5-80-720 C	N/A	0.15 MMBtu/hr
MH-3	Marine operations portable diesel-fired heater	9VAC5-80-720 C	N/A	0.15 MMBtu/hr
PB-1	South Maintenance paint fume hood	9VAC5-80-720 B	VOC	N/A
RAC-1	Rental air compressors	9VAC5-80-720	PM,SO ₂ ,NO _x ,CO, VOC	N/A

These emission units are presumed to be in compliance with all requirements of the federal Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping, or reporting shall be required for these emission units in accordance with 9VAC5-80-110.

PERMIT SHIELD AND INAPPLICABLE REQUIREMENTS

Compliance with the provisions of this permit shall be deemed compliance with all applicable requirements in effect as of the permit issuance date as identified in this permit. This permit shield covers only those applicable requirements covered by terms and conditions in this permit and the following requirements which have been specifically identified as being not applicable to this permitted facility:

Citation	Title of Citation	Description of Applicability
None Identified		

Nothing in this permit shield shall alter the provisions of §303 of the federal Clean Air Act, including the authority of the administrator under that section, the liability of the owner for any violation of applicable requirements prior to or at the time of permit issuance, or the ability to obtain information by the administrator pursuant to §114 of the federal Clean Air Act, (ii) the Board pursuant to §10.1-1314 or §10.1-1315 of the Virginia Air Pollution Control Law or (iii) the Department pursuant to §10.1-1307.3 of the Virginia Air Pollution Control Law.
(9VAC5-80-140)

GENERAL CONDITIONS

454. **General Conditions - Federal Enforceability** - All terms and conditions in this permit are enforceable by the administrator and citizens under the federal Clean Air Act, except those that have been designated as only state-enforceable.
(9VAC5-80-110)
455. **General Conditions - Permit Expiration** –
- This permit has a fixed term of five years. The expiration date shall be the date five years from the date of issuance. Unless the owner submits a timely and complete application for renewal to the Department consistent with the requirements of 9VAC5-80-80, the right of the facility to operate shall be terminated upon permit expiration.
 - The owner shall submit an application for renewal at least six months but no earlier than eighteen months prior to the date of permit expiration.
 - If an applicant submits a timely and complete application for an initial permit or renewal under 9VAC5-80-80 F, the failure of the source to have a permit or the operation of the source without a permit shall not be a violation of Article 1, Part II of 9VAC5 Chapter 80, until the Board takes final action on the application under 9VAC5-80-150.
 - No source shall operate after the time that it is required to submit a timely and complete application under subsections C and D of 9VAC5-80-80 for a renewal permit, except in compliance with a permit issued under Article 1, Part II of 9VAC5 Chapter 80.

- e. If an applicant submits a timely and complete application under section 9VAC5-80-80 for a permit renewal but the Board fails to issue or deny the renewal permit before the end of the term of the previous permit, (i) the previous permit shall not expire until the renewal permit has been issued or denied and (ii) all the terms and conditions of the previous permit, including any permit shield granted pursuant to 9VAC5-80-140, shall remain in effect from the date the application is determined to be complete until the renewal permit is issued or denied.
- f. The protection under subsections F 1 and F 5 (ii) of section 9VAC5-80-80 F shall cease to apply if, subsequent to the completeness determination made pursuant section 9VAC5-80-80 D, the applicant fails to submit by the deadline specified in writing by the Board any additional information identified as being needed to process the application.
(9VAC5-80-80, 9VAC5-80-110 and 9VAC5-80-170)

456. **General Conditions -Recordkeeping and Reporting** - All records of monitoring information maintained to demonstrate compliance with the terms and conditions of this permit shall contain, where applicable, the following:

- a. The date, place as defined in the permit, and time of sampling or measurements;
- b. The date(s) analyses were performed;
- c. The company or entity that performed the analyses;
- d. The analytical techniques or methods used;
- e. The results of such analyses; and
- f. The operating conditions existing at the time of sampling or measurement.
(9VAC5-80-110 F)

457. **General Conditions -Recordkeeping and Reporting** - Records of all monitoring data and support information shall be retained for at least five years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.
(9VAC5-80-110)

458. **General Conditions -Recordkeeping and Reporting** - The permittee shall submit the results of monitoring contained in any applicable requirement to DEQ no later than March 1 and September 1 of each calendar year. This report must be signed by a responsible official, consistent with 9VAC5-80-80 G, and shall include:

- a. The time period included in the report. The time periods to be addressed are January 1 to June 30 and July 1 to December 31; and
- b. All deviations from permit requirements. For purpose of this permit, deviations include, but are not limited to:
 - i. Exceedance of emissions limitations or operational restrictions;

- ii. Excursions from control device operating parameter requirements, as documented by continuous emission monitoring, periodic monitoring, or Compliance Assurance Monitoring (CAM) which indicates an exceedance of emission limitations or operational restrictions; or,
 - iii. Failure to meet monitoring, recordkeeping, or reporting requirements contained in this permit.
- c. If there were no deviations from permit conditions during the time period, the permittee shall include a statement in the report that "no deviations from permit requirements occurred during this semi-annual reporting period."
(9VAC5-80-110)

459. **General Conditions - Annual Compliance Certification** - Exclusive of any reporting required to assure compliance with the terms and conditions of this permit or as part of a schedule of compliance contained in this permit, the permittee shall submit to EPA and DEQ no later than March 1 each calendar year a certification of compliance with all terms and conditions of this permit including emission limitation standards or work practices for the period ending December 31. The compliance certification shall comply with such additional requirements that may be specified pursuant to §114(a)(3) and §504(b) of the federal Clean Air Act. The permittee shall maintain a copy of the certification for five (5) years after submittal of the certification. This certification shall be signed by a responsible official, consistent with 9VAC5-80-80 G, and shall include:

- a. The time period included in the certification. The time period to be addressed is January 1 to December 31;
- b. The identification of each term or condition of the permit that is the basis of the certification;
- c. The compliance status;
- d. Whether compliance was continuous or intermittent, and if not continuous, documentation of each incident of non-compliance;
- e. Consistent with subsection 9VAC5-80-110, the method or methods used for determining the compliance status of the source at the time of certification and over the reporting period;
- f. Such other facts as the permit may require to determine the compliance status of the source; and
- g. One copy of the annual compliance certification shall be submitted to EPA in electronic format only. The certification document should be sent to the following electronic mailing address:

R3_APD_Permits@epa.gov

(9VAC5-80-110)

460. **General Conditions - Permit Deviation Reporting** - The permittee shall notify the Piedmont Regional Office within four daytime business hours after discovery of any deviations from permit requirements which may cause excess emissions for more than one hour, including those attributable to upset conditions as may be defined in this permit. In addition, within 14 days of the discovery, the permittee shall provide a written statement explaining the problem, any corrective actions or preventative measures taken, and the estimated duration of the permit deviation. Owners subject to the requirements of 9VAC5-40-50 C and 9VAC5-50-50 C are not required to provide the written statement prescribed in this paragraph for facilities

subject to the monitoring requirements of 9VAC5-40-40 and 9VAC5-50-40. The occurrence should also be reported in the next semi-annual compliance monitoring report pursuant to Condition #458 of this permit. (9VAC5-80-110 F.2 and 9VAC5-80-250)

461. **General Conditions - Failure/Malfunction Reporting** - In the event that any affected facility or related air pollution control equipment fails or malfunctions in such a manner that may cause excess emissions for more than one hour, the owner shall no later than four daytime business hours after the malfunction is discovered, notify the Piedmont Regional Office of such failure or malfunction and shall within 14 days of discovery provide a written statement giving all pertinent facts, including the estimated duration of the breakdown. Owners subject to the requirements of 9VAC5-40-50 C and 9VAC5-50-50 C are not required to provide the written statement prescribed in this paragraph for facilities subject to the monitoring requirements of 9VAC5-40-40 and 9VAC5-50-40. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the owner shall notify the Piedmont Regional Office.
(9VAC5-80-110 and 9VAC5-20-180)
462. **General Conditions - Failure/Malfunction Reporting** - The emission units that have continuous monitors subject to 9VAC5-40-50 C and 9VAC5-50-50 C are not subject to the 14-day written notification.
(9VAC5-20-180 C, 9VAC5-40-50 and 9VAC5-50-50)
463. **General Conditions - Severability** - The terms of this permit are severable. If any condition, requirement or portion of the permit is held invalid or inapplicable under any circumstance, such invalidity or inapplicability shall not affect or impair the remaining conditions, requirements, or portions of the permit.
(9VAC5-80-110 G.1)
464. **General Conditions - Duty to Comply** - The permittee shall comply with all terms and conditions of this permit. Any permit noncompliance constitutes a violation of the federal Clean Air Act or the Virginia Air Pollution Control Law or both and is ground for enforcement action; for permit termination, revocation and reissuance, or modification; or, for denial of a permit renewal application.
(9VAC5-80-110 G.2)
465. **General Conditions - Need to Halt or Reduce Activity not a Defense** - It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
(9VAC5-80-110 G.3)
466. **General Conditions - Permit Modification** - A physical change in, or change in the method of operation of, this stationary source may be subject to permitting under State Regulations 9VAC5-80-50, 9VAC5-80-1100, 9VAC5-80-1605, or 9VAC5-80-2000 and may require a permit modification and/or revisions except as may be authorized in any approved alternative operating scenarios.
(9VAC5-80-190 and 9VAC5-80-260)
467. **General Conditions - Property Rights** - The permit does not convey any property rights of any sort, or any exclusive privilege.
(9VAC5-80-110 G.5)
468. **General Conditions - Duty to Submit Information** - The permittee shall furnish to the Board, within a reasonable time, any information that the Board may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Board copies of records required to be kept by

the permit and, for information claimed to be confidential, the permittee shall furnish such records to the Board along with a claim of confidentiality.
(9VAC5-80-110 G.6)

469. **General Conditions - Duty to Submit Information** - Any document (including reports) required in a permit condition to be submitted to the Board shall contain a certification by a responsible official that meets the requirements of 9VAC5-80-80 G.
(9VAC5-80-110 K.1)
470. **General Conditions - Duty to Pay Permit Fees** - The owner of any source for which a permit under 9VAC5-80-50 through 9VAC5-80-300 was issued shall pay permit fees consistent with the requirements of 9VAC5-80-310 through 9VAC5-80-350 in addition to an annual permit maintenance fee consistent with the requirements of 9VAC5-80-2310 through 9VAC5-80-2350. The actual emissions covered by the permit program fees for the preceding year shall be calculated by the owner and submitted to the Department by April 15 of each year. The calculations and final amount of emissions are subject to verification and final determination by the Department. The amount of the annual permit maintenance fee shall be the largest applicable base permit maintenance fee amount from Table 8-11A in 9VAC5-80-2340, adjusted annually by the change in the Consumer Price Index.
(9VAC5-80-110 H, 9VAC5-80-340 C and 9VAC5-80-2340 B)
471. **General Conditions - Fugitive Dust Emission Standards** - During the operation of a stationary source or any other building, structure, facility, or installation, no owner or other person shall cause or permit any materials or property to be handled, transported, stored, used, constructed, altered, repaired, or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne. Such reasonable precautions may include, but are not limited to, the following:
- a. Use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of land;
 - b. Application of asphalt, water, or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which may create airborne dust; the paving of roadways and the maintaining of them in a clean condition;
 - c. Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty material. Adequate containment methods shall be employed during sandblasting or similar operations;
 - d. Open equipment for conveying or transporting material likely to create objectionable air pollution when airborne shall be covered or treated in an equally effective manner at all times when in motion; and,
 - e. The prompt removal of spilled or tracked dirt or other materials from paved streets and of dried sediments resulting from soil erosion.
- (9VAC5-40-90 and 9VAC5-50-90)
472. **General Conditions - Startup, Shutdown, and Malfunction** - At all times, including periods of startup, shutdown, and soot blowing, and malfunction, owners shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with air pollution control practices for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Board, which may

include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.
(9VAC5-50-20 E and 9VAC5-40-20 E)

473. **General Conditions - Alternative Operating Scenarios** - Contemporaneously with making a change between reasonably anticipated operating scenarios identified in this permit, the permittee shall record in a log at the permitted facility a record of the scenario under which it is operating. The permit shield described in 9VAC5-80-140 shall extend to all terms and conditions under each such operating scenario. The terms and conditions of each such alternative scenario shall meet all applicable requirements including the requirements of 9VAC5 Chapter 80, Article 1.
(9VAC5-80-110 J)
474. **General Conditions - Inspection and Entry Requirements** - The permittee shall allow DEQ, upon presentation of credentials and other documents as may be required by law, to perform the following:
- a. Enter upon the premises where the source is located or emissions-related activity is conducted, or where records must be kept under the terms and conditions of the permit.
 - b. Have access to and copy, at reasonable times, any records that must be kept under the terms and conditions of the permit.
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit.
 - d. Sample or monitor at reasonable times' substances or parameters for the purpose of assuring compliance with the permit or applicable requirements.
(9VAC5-80-110 K.2)
475. **General Conditions - Reopening For Cause** - The permit shall be reopened by the Board if additional federal requirements become applicable to a major source with a remaining permit term of three years or more. Such reopening shall be completed no later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended pursuant to 9VAC5-80-80 F. The conditions for reopening a permit are as follows:
- a. The permit shall be reopened if the Board or the administrator determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.
 - b. The permit shall be reopened if the administrator or the Board determines that the permit must be revised or revoked to assure compliance with the applicable requirements.
 - c. The permit shall not be reopened by the Board if additional applicable state requirements become applicable to a major source prior to the expiration date established under 9VAC5-80-110 D.
(9VAC5-80-110 L)
476. **General Conditions - Permit Availability** - Within five days after receipt of the issued permit, the permittee shall maintain the permit on the premises for which the permit has been issued and shall make the permit immediately available to DEQ upon request.
(9VAC5-80-150 E)

477. **General Conditions - Transfer of Permits** - No person shall transfer a permit from one location to another, unless authorized under 9VAC5-80-130, or from one piece of equipment to another.
(9VAC5-80-160)
478. **General Conditions - Transfer of Permits** - In the case of a transfer of ownership of a stationary source, the new owner shall comply with any current permit issued to the previous owner. The new owner shall notify the Board of the change in ownership within 30 days of the transfer and shall comply with the requirements of 9VAC5-80-200.
(9VAC5-80-160)
479. **General Conditions - Transfer of Permits** - In the case of a name change of a stationary source, the owner shall comply with any current permit issued under the previous source name. The owner shall notify the Board of the change in source name within 30 days of the name change and shall comply with the requirements of 9VAC5-80-200.
(9VAC5-80-160)
480. **General Conditions - Malfunction as an Affirmative Defense** - The affirmative defense of malfunction shall be demonstrated by the permittee through properly signed, contemporaneous operating logs, or other relevant evidence that show the following:
- a. A malfunction occurred and the permittee can identify the cause or causes of the malfunction.
 - b. The permitted facility was at the time being properly operated.
 - c. During the period of the malfunction the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit.
 - d. The permittee notified the Board of the malfunction within two working days following the time when the emission limitations were exceeded due to the malfunction. This notification shall include a description of the malfunction, any steps taken to mitigate emissions, and corrective actions taken. The notification may be delivered either orally or in writing. The notification may be delivered by electronic mail, facsimile transmission, telephone, or any other method that allows the permittee to comply with the deadline. This notification fulfills the requirements of 9VAC5-80-110 F.2.b to report promptly deviations from permit requirements. This notification does not release the permittee from the malfunction reporting requirement under 9VAC5-20-180 C.
(9VAC5-80-250)
481. **General Conditions - Malfunction as an Affirmative Defense** - In any enforcement proceeding, the permittee seeking to establish the occurrence of a malfunction shall have the burden of proof.
(9VAC5-80-250)
482. **General Conditions - Malfunction as an Affirmative Defense** - The provisions of Conditions #480-481 are in addition to any malfunction, emergency or upset provision contained in any applicable requirement.
(9VAC5-80-250)
483. **General Conditions - Permit Revocation or Termination for Cause** - A permit may be revoked or terminated prior to its expiration date if the owner knowingly makes material misstatements in the permit application or any amendments thereto or if the permittee violates, fails, neglects or refuses to comply with the terms or conditions of the permit, any applicable requirements, or the applicable provisions of 9VAC5

Chapter 80 Article 1. The Board may suspend, under such conditions and for such period of time as the Board may prescribe any permit for any grounds for revocation or termination or for any other violations of these regulations.

(9VAC5-80-190 C and 9VAC5-80-260)

484. **General Conditions - Duty to Supplement or Correct Application** - Any applicant who fails to submit any relevant facts or who has submitted incorrect information in a permit application shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrections. An applicant shall also provide additional information as necessary to address any requirements that become applicable to the source after the date a complete application was filed but prior to release of a draft permit. (9VAC5-80-80 E)
485. **General Conditions - Stratospheric Ozone Protection** - If the permittee handles or emits one or more Class I or II substances subject to a standard promulgated under or established by Title VI (Stratospheric Ozone Protection) of the federal Clean Air Act, the permittee shall comply with all applicable sections of 40 CFR Part 82, Subparts A to F. (40 CFR Part 82, Subparts A-F)
486. **General Conditions - Asbestos Requirements** - The permittee shall comply with the requirements of National Emissions Standards for Hazardous Air Pollutants (40 CFR 61) Subpart M, National Emission Standards for Asbestos as it applies to the following: Standards for Demolition and Renovation (40 CFR 61.145), Standards for Insulating Materials (40 CFR 61.148), and Standards for Waste Disposal (40 CFR 61.150). (9VAC5-60-70 and 9VAC5-80-110 A.1)
487. **General Conditions - Accidental Release Prevention** - If the permittee has more, or will have more than a threshold quantity of a regulated substance in a process, as determined by 40 CFR 68.115, the permittee shall comply with the requirements of 40 CFR Part 68. (40 CFR Part 68)
488. **General Conditions - Changes to Permits for Emissions Trading** - No permit revision shall be required under any federally approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes that are provided for in this permit. (9VAC5-80-110 I)
489. **General Conditions - Emissions Trading** - Where the trading of emissions increases and decreases within the permitted facility is to occur within the context of this permit and to the extent that the regulations provide for trading such increases and decreases without a case-by-case approval of each emissions trade:
- a. All terms and conditions required under 9VAC5-80-110, except subsection N, shall be included to determine compliance.
 - b. The permit shield described in 9VAC5-80-140 shall extend to all terms and conditions that allow such increases and decreases in emissions.
 - c. The owner shall meet all applicable requirements including the requirements of 9VAC5-80-50 through 9VAC5-80-300. (9VAC5-80-110 I)

Attachment A-1

COMPLIANCE ASSURANCE MONITORING PLAN FOR AREA 6 ADVANSIX RESINS AND CHEMICALS LLC TITLE V PERMIT NO. PRO50232

Compliance Assurance Monitoring (CAM) Rule

The CAM rule is essentially a companion rule to Title V, requiring that control device operating parameters be monitored in order to demonstrate compliance with a specified emission limitation or standard. At 40 CFR 64.2(a), the CAM rule states the following:

“...the requirements of this part shall apply to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:

- (1) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;*
- (2) The unit uses a control device to achieve compliance with any such emission limitation or standard; and*
- (3) The unit has the potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...”*

The CAM Rule defines two classes of emission units. These are “large pollutant-specific emissions units” and “other pollutant-specific emissions units”. The “large” units are those, “...with the potential to emit...taking into account control devices...the applicable regulated pollutant in an amount greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...” The “other” units are those that are not “large” units. As such, the primary difference between the two categories is that “large” units are those that are still major (*i.e.*, greater than 100 percent of the major source threshold) after the application of controls, while the “other” units are those that are non-major (*i.e.*, less than or equal to 100 percent of the major source threshold) following the application of controls.

The federal regulations, at 40 CFR 64.5(a)(2), state the following with regard to submittal of a CAM Plan for “large pollutant-specific emissions units”:

“On or after April 20, 1998, the owner or operator shall submit information as part of an application for a significant permit revision under part 70 or 71 of this chapter, but only with respect to those pollutant-specific emissions units for which the proposed permit revision is applicable.”

The regulations, at 40 CFR 64.5(b), state the following with regard to submittal of a CAM Plan for the “other pollutant-specific emissions units”:

“...the owner or operator shall submit the information required...as part of an application for a renewal of a part 70 or part 71 permit.”

Area 6 Sources Venting to FLS-61/62

A. Background

1. Emissions Unit

Facility: AdvanSix Resins and Chemicals LLC - Hopewell Plant

Process Description: See Table Below

Stack ID: FLS-61/62

Ref. #	Process/Equipment Description
F-118, F-119	A6 Cryogenics Carbon Beds
CL-2	Cyclohexanone Distillation Column
CL-9	Cyclohexanol (APT-1 System) Distillation Column
CL-17	Cyclohexanol Distillation Column
CL-18	Cyclohexanone Distillation Column
CL-26	Cyclohexanone Distillation Column
CL-80	Cyclohexanol Distillation Column
CL-65-N	Cyclohexanone Distillation Column
CT-48, CT-53, CT-55	Three Continuous Cyclohexanone Catalyst Centrifuges
APT-1	Cyclohexanol Batch Reactor

2. Applicable Regulation, Emissions Limit, and Pre-CAM Monitoring Requirements

With regard to the four criteria listed above for a facility to be subject to the CAM rule, the following facts pertain to the AdvanSix Resins and Chemicals LLC - Hopewell Plant:

- The Hopewell Plant is a major source and has a Title V Permit, PRO50232.
- The various systems (see above) are subject to existing Title V Permit limits. The Title V Permit was originally issued on January 1, 2007.
- The process equipment utilizes a control device (flare) to achieve compliance with the VOC emission limits.
- The pre-controlled, potential VOC emission rate is above the major source level of 100 tons per year.

Based on these facts, the emission units are subject to the CAM requirements for VOC.

CAM Emissions limit: FLS-61/62 VOC: 98% control; 10.2 lbs/hr; 6.0 tons/year

Pre-CAM Monitoring Requirements: bypass flow indicators, pilot flame indicators and visible emissions observations.

3. Control Technology, Capture system, Bypass, Potential-to-Emit

Controls: Flare

Capture System: Closed duct system

Bypass: In the event of a startup, shutdown, or malfunction, the flare could be bypassed.
Periods of bypass are documented and reported as necessary.

PTE Before Control: >major source thresholds for VOC

PTE After Control: 6.0 tons/year

B. CAM Approach

FLS-61

	Indicator 1	Indicator 2	Indicator 3	Indicator 4
Indicator	Pilot light indication	Exit Velocity	Visible Emissions	Higher heating value or hydrogen content
Measurement Approach	Monitored continuously with "Pilot Eye"	Continuous calculation of exit velocity	Monthly visible emissions checks	Continuous calculation of higher heating value or hydrogen content
Indicator Range	Indication that pilots are lit	Less than limit calculated using formula in condition 101 of 12/5/19 NSR permit	Presence of visible emissions	Greater than 7.45 MJ/scm (200 Btu/scf) or greater than 8.0 percent by volume hydrogen content
Performance Criteria				
Data Representativeness	Measured continuously	Calculated continuously	NA - times chosen randomly	Calculated continuously
Verification of Operational Status	NA	Verify that area is running before collecting flow data	Observer verifies area running before conducting observations	Verify that area is running before collecting heat data or hydrogen data
QA/QC practices	Follow site PM schedule for calibration	Periodic review of underlying data and calculations	Observer trained on VE/Opacity	Periodic review of underlying data and calculations
Monitoring Frequency	Continuously	Continuously	Monthly	Continuously
Data Collection Procedures	DCS collects data	DCS collects data	Paper record	DCS collects data
Averaging Period	3 hour	3 hour	NA	3 hour
Excursions	Absence of pilot light	Velocity less than limit calculated using formula in condition 101 of 12/5/19 NSR permit	Presence of visible emissions	Heat content less than 7.45 MJ/scm (200 Btu/scf) or hydrogen content < 8% by volume

FLS-62

	Indicator 1	Indicator 2	Indicator 3	Indicator 4
Indicator	Pilot light indication	Exit Velocity	Visible Emissions	Higher heating value or hydrogen content
Measurement Approach	Monitored continuously with "Pilot Eye"	Flow rate sampling	Monthly visible emissions checks	Gas sample
Indicator Range	Indication that pilots are lit	Less than limit calculated using formula in condition 101 of 12/5/19 NSR permit	Presence of visible emissions	Greater than 7.45 MJ/scm (200 Btu/scf) or greater than 8.0 percent by volume hydrogen content
Performance Criteria				
Data Representativeness	Measured continuously	NA – once per year check at sample port	NA - times chosen randomly	NA – once per year check at sample port
Verification of Operational Status	NA	Verify that area is running before collecting flow data	Observer verifies area running before conducting observations	Verify that area is running before collecting heat data or hydrogen content data
QA/QC practices	Follow site PM schedule for calibration	NA	Observer trained on VE/Opacity	NA
Monitoring Frequency	Continuously	Flow measure once per year	Monthly	Heat content or hydrogen content sample taken once per year
Data Collection Procedures	DCS collects data	Paper record	Paper record	Paper record
Averaging Period	3 hour	3 hour	NA	3 hour
Excursions	Absence of pilot light	Velocity less than limit calculated using formula in condition 101 of 12/5/19 NSR permit	Presence of visible emissions	Heat content less than 7.45 MJ/scm (200 Btu/scf) or hydrogen content < 8% by volume

C. Response to Excursion

During normal operation, the absence of a pilot light, increased velocity of exit gases, the presence of visible emissions and/or low fuel higher heating value or low hydrogen content indicate flare performance issues that require corrective actions. During such events, an investigation will be initiated to determine the cause of the excursion and corrective actions taken as soon as practicable to correct the cause of the excursion. All excursions will be documented and reported as necessary.

D. Justification

4. Background

The pollutant specific emissions unit (PSEU A) is VOC from the various Area 6 emission units.

5. Rationale for Selection of Performance Indicators and Ranges

The CAM indicators selected are pilot light indication, velocity of gas to flares, visible emissions and higher heating value or hydrogen content of the gas to the flare. These approaches are typical for flares and in combination with the continuous monitoring of flow rates of streams venting to the flare provide sufficient verification that effective destruction of VOC vented to the flare is occurring.

Area 6 Sources Venting to Kellogg FU-1

A. Background

1. Emissions Unit

Facility: AdvanSix Resins and Chemicals LLC - Hopewell Plant
Process Description: A6 Continuous Cyclohexanone Hydrogenation (A6-Hydro)
Stack ID: FU-1 (or FLS-61/62)

2. Applicable Regulation, Emissions Limit, and Pre-CAM Monitoring Requirements

With regard to the four criteria listed above for a facility to be subject to the CAM rule, the following facts pertain to the AdvanSix Resins & Chemicals - Hopewell Plant:

- The Hopewell Plant is a major source and has a Title V Permit, PRO50232.
- The various systems (see above) are subject to existing Title V Permit limits. The Title V Permit was originally issued on January 1, 2007.
- The process equipment utilizes a process heater (FU-1) in Kellogg to achieve compliance with the VOC emission limits. (The non-assisted flares discussed in the previous section are used as backup.)
- The pre-controlled, potential VOC emission rate is above the major source level of 100 tons per year.

Based on these facts, the emission units are subject to the CAM requirements for VOC.

CAM Emissions limit: VOC: 1.3 lbs/hr 5.2 tons/year

Pre-CAM Monitoring Requirements: flow indication

3. Control Technology, Capture system, Bypass, Potential-to-Emit

Controls: Process Heater (FU-1)
Capture System: Closed duct system
Bypass: In the event of a startup, shutdown, or malfunction, FU-1 could be bypassed and the vent stream sent to FLS-61/62. Periods of bypass are documented and reported as necessary.
PTE Before Control: >major source thresholds for VOC
PTE After Control: 5.2 tons/year

B. CAM Approach

	Indicator 1	Indicator 2
Indicator	Flow indication of reaction gases from A6 to FU-1 or FLS-61/62	Temperature monitoring of FU-1
Measurement Approach	Measure pressure	Measure temperature
Indicator Range	Determined based on testing	Greater than normal operating temperature of 800 °C (1472 °F)
Performance Criteria		
Data Representativeness	NA - continuously monitored	NA - continuously monitored
Verification of Operational Status	NA	NA
QA/QC practices	Follow site PM schedule for calibration	Follow site PM schedule for calibration
Monitoring Frequency	Continuous	Continuous
Data Collection Procedures	Continuously recorded by DCS	Continuously recorded by DCS
Averaging Period	NA - continuously monitored	NA - continuously monitored
Excursions	Pressure less than limit established to indicate no flow	Temperature below normal operating temperature of 800 °C (1472 °F)

C. Response to Excursion

During normal operation, the absence of flow indication of reaction gases to FU-1 indicates process conditions that require corrective actions. In this case, the vent stream is sent to the flare and not to the atmosphere. In addition, the plant continuously monitors the temperature within the chamber of FU-1. During normal operation, an indication of temperature below 800 °C indicates process heater performance issues that require corrective actions.

During such events, an investigation will be initiated to determine the cause of the excursion and corrective actions taken as soon as practicable to correct the cause of the excursion. All excursions will be documented and reported as necessary.

D. Justification

4. Background

The pollutant specific emissions unit (PSEU B) is VOC from A6-Hydro.

5. Rationale for Selection of Performance Indicators and Ranges

The CAM indicators selected are flow indication from Area 6 reactions to FU-1 and chamber temperature in FU-1. The processes themselves are continuously monitored to assure that the process conditions remain in closely controlled ranges. Therefore, a key condition to be monitored is monitoring that the vented gas is in fact going to the process. In addition, the minimum temperature in the chamber of the process heater will be maintained above the temperature demonstrated to provide sufficient destruction efficiency.

Attachment A-2

COMPLIANCE ASSURANCE MONITORING PLAN FOR AREA 9 ADVANSIX RESINS AND CHEMICALS LLC TITLE V PERMIT NO. PRO50232

Compliance Assurance Monitoring (CAM) Rule

The CAM rule is essentially a companion rule to Title V, requiring that control device operating parameters be monitored in order to demonstrate compliance with a specified emission limitation or standard. At 40 CFR 64.2(a), the CAM rule states the following:

“...the requirements of this part shall apply to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:

- (4) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;*
- (5) The unit uses a control device to achieve compliance with any such emission limitation or standard; and*
- (6) The unit has the potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...”*

The CAM Rule defines two classes of emission units. These are “large pollutant-specific emissions units” and “other pollutant-specific emissions units”. The “large” units are those, “...with the potential to emit...taking into account control devices...the applicable regulated pollutant in an amount greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...” The “other” units are those that are not “large” units. As such, the primary difference between the two categories is that “large” units are those that are still major (*i.e.*, greater than 100 percent of the major source threshold) after the application of controls, while the “other” units are those that are non-major (*i.e.*, less than or equal to 100 percent of the major source threshold) following the application of controls.

The federal regulations, at 40 CFR 64.5(a)(2), state the following with regard to submittal of a CAM Plan for “large pollutant-specific emissions units”:

“On or after April 20, 1998, the owner or operator shall submit information as part of an application for a significant permit revision under part 70 or 71 of this chapter, but only with respect to those pollutant-specific emissions units for which the proposed permit revision is applicable.”

The regulations, at 40 CFR 64.5(b), state the following with regard to submittal of a CAM Plan for the “other pollutant-specific emissions units”:

“...the owner or operator shall submit the information required...as part of an application for a renewal of a part 70 or part 71 permit.”

It should be noted that Area 9 has a phased construction schedule and that some of the control equipment in the permit will be replaced. This CAM Plan includes current and future equipment scenarios.

Area 9 Sources Venting to Fabric Filters (“Candles”)

A. Background

1. Emissions Unit

Description: Disulfonate Towers (TW-62, TW-9, TW-18, TW-23 and TW-33)
Facility: AdvanSix Resins and Chemicals LLC - Hopewell Plant
Control Device: Fabric Filters (“Candles”)/mist eliminators (SE-88, SE-89, SE-90, SE-91 and SE-101)

2. Applicable Regulation, Emissions Limit, and Pre-CAM Monitoring Requirements

With regard to the four criteria listed above for a facility to be subject to the CAM rule, the following facts pertain to the AdvanSix Resins and Chemicals LLC - Hopewell Plant:

- The Hopewell Plant is a major source and has a Title V Permit, PRO50232.
- The various systems (see above) are subject to existing Title V Permit limits. The Title V Permit was originally issued on January 1, 2007.
- The process equipment utilizes a control device (fabric filters “candles”) to achieve compliance with the PM-10 emission limits.
- The pre-controlled, potential PM-10 emission rate is above the major source level of 100 tons per year.

Based on these facts, the emission units are subject to the CAM requirements for PM.

<u>CAM Emission Limits:</u>	TW-62	PM-10: 1.2 lbs/hr	4.5 tons/yr
	TW-9	PM-10: 1.2 lbs/hr	4.5 tons/yr
	TW-18	PM-10: 4.1 lbs/hr	11.6 tons/yr
	TW-23	PM-10: 1.2 lbs/hr	4.5 tons/yr
	TW-33	PM-10: 1.6 lbs/hr	4.5 tons/yr

Pre-CAM Monitoring Requirements: pressure drop

3. Control Technology, Capture system, Bypass, Potential-to-Emit

Controls: Fabric filters (candles)
Capture System: Closed duct system
Bypass: N/A
PTE Before Control: 225 tons/yr PM-10 per emission unit
PTE After Control: See CAM emission limits above

B. CAM Approach

	Indicator 1	Indicator 2
Indicator	Pressure Drop	NA
Measurement Approach	Pressure drop continuously measured and recorded	NA
Indicator Range	Pressure drop setpoint of 7 in. of water contained in letter to DEQ dated 8/19/2011 and 5.7 in. of water for SE-89 permit limit	NA
Performance Criteria		
Data Representativeness	NA - measured continuously	NA
Verification of Operational Status	NA	NA
QA/QC practices	Pressure sensors calibrated according to site PM schedule	NA
Monitoring Frequency	Continuous	NA
Data Collection Procedures	15 minute averages recorded	NA
Averaging Period	1 hour	NA
Excursions	Pressure drop less than 7 in. of water (5.7 in. of water for SE-89)	NA

C. Response to Excursion

During normal operation, a decrease in pressure differential will indicate failure in the filter material or failure in other elements of the fabric filter system that require corrective action. During such events, an investigation will be initiated to determine the cause of the excursion and corrective actions taken as soon as practicable to correct the cause of the excursion. All excursions will be documented and reported as necessary.

D. Justification

4. Background

The pollutant specific emissions units (PSEU C-G) are the PM-10 emission from TW-62, TW-9, TW-18, TW-23 and TW-33.

5. Rationale for Selection of Performance Indicators and Ranges

A decrease in pressure differential will indicate failure in the filter material or failure in other elements of the fabric filter system. Continuous monitoring of the pressure difference will provide rapid (virtually instantaneous) indication of such problems.

Area 9 Sources Venting to NO Time Tanks and Packed Bed Scrubbers

A. Background

1. Emissions Unit

Facility: AdvanSix Resins and Chemicals LLC - Hopewell Plant
Process Description: NO time tank (VT-883) for “D” train nitrite tower (TW-22)
(and Stack ID) NO time tank (VT-847) for “E” train nitrite tower (TW-32)
Packed bed scrubber (SE-32) for “D” train Disulfonate tower (TW-23)
Packed bed scrubber (SE-54) for “E” train Disulfonate tower (TW-33)

2. Applicable Regulation, Emissions Limit, and Pre-CAM Monitoring Requirements

With regard to the four criteria listed above for a facility to be subject to the CAM rule, the following facts pertain to the Hopewell Plant:

- The Hopewell Plant is a major source and has a Title V Permit, PRO50232.
- The various systems (see above) are subject to existing Title V Permit limits. The Title V Permit was originally issued on January 1, 2007.
- The process equipment utilizes a control device (NO time tanks or packed bed scrubbers) to achieve compliance with the NOx emission limits.
- The pre-controlled, potential NOx emission rate is above the major source level of 100 tons per year.

Based on these facts, the emission units are subject to the CAM requirements for NOx.

<u>CAM Emission Limits:</u>	TW-22	NOx: 70% reduction efficiency
	TW-23	NOx: 50% reduction efficiency
	TW-32	NOx: 70% reduction efficiency
	TW-33	NOx: 50% reduction efficiency

Pre-CAM Monitoring Requirements: CEMS/CERMS

3. Control Technology, Capture system, Bypass, Potential-to-Emit

Controls: NO Time Tanks (TW-22 and TW-33) or packed bed scrubber (TW-23 and TW-33)
Capture System: Closed duct system
Bypass: N/A
PTE Before Control: >major source thresholds for NOx
PTE After Control: 600 tons/yr per unit in Phases 1-4

B. CAM Approach

	Indicator 1	Indicator 2
Indicator	NOx emission rates	NA
Measurement Approach	CEMS/CERMS continuously measure NOx emissions	NA
Indicator Range	Below permit limits	NA
Performance Criteria		
Data Representativeness	NA - continuously monitored	NA
Verification of Operational Status	NA	NA
QA/QC practices	Part 60 requirements	NA
Monitoring Frequency	Continuous	NA
Data Collection Procedures	Measured continuously	NA
Averaging Period	DCS records every 15 minutes and records 3 hour averages	NA
Excursions	Exceedance of emissions limit	NA

C. Response to Excursion

A CEMS is used as CAM for the NO time tanks and packed bed scrubbers which control NOx emissions below the permitted limits. An excursion is an exceedance of the NOx emission rates. During such events, an investigation will be initiated to determine the cause of the excursion and corrective actions taken as soon as practicable to correct the cause of the excursion. All excursions will be documented and reported as necessary.

D. Justification

4. Background

The pollutant specific emissions units are the NOx emissions from T-22 and TW-32 (PSEU H-I) and the NOx emissions from TW-23 and TW-33 (PSEU J-K).

5. Rationale for Selection of Performance Indicators and Ranges

CEMS will be used as CAM for the NO time tanks and packed bed scrubbers that are the control devices for both the Area 9 “D” and “E” train disulfonate and nitrite towers. CAM requires CEMS to be used as CAM when they are required by the underlying applicable requirement. The CEMS provide a continuous measurement of NO_x in pounds per hour. If the pounds per hour limit is met then the assumption is that the control device efficiency is also met. Therefore, there is not a need for additional monitoring of control device parameters.

Attachment A-3

COMPLIANCE ASSURANCE MONITORING PLAN FOR AREAS 7 & 8 ADVANSIX RESINS AND CHEMICALS LLC TITLE V PERMIT NO. PRO50232

Compliance Assurance Monitoring (CAM) Rule

The CAM rule is essentially a companion rule to Title V, requiring that control device operating parameters be monitored in order to demonstrate compliance with a specified emission limitation or standard. At 40 CFR 64.2(a), the CAM rule states the following:

“...the requirements of this part shall apply to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:

- (7) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;*
- (8) The unit uses a control device to achieve compliance with any such emission limitation or standard; and*
- (9) The unit has the potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...”*

The CAM Rule defines two classes of emission units. These are “large pollutant-specific emissions units” and “other pollutant-specific emissions units”. The “large” units are those, “...with the potential to emit...taking into account control devices...the applicable regulated pollutant in an amount greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...” The “other” units are those that are not “large” units. As such, the primary difference between the two categories is that “large” units are those that are still major (*i.e.*, greater than 100 percent of the major source threshold) after the application of controls, while the “other” units are those that are non-major (*i.e.*, less than or equal to 100 percent of the major source threshold) following the application of controls.

The federal regulations, at 40 CFR 64.5(a)(2), state the following with regard to submittal of a CAM Plan for “large pollutant-specific emissions units”:

“On or after April 20, 1998, the owner or operator shall submit information as part of an application for a significant permit revision under part 70 or 71 of this chapter, but only with respect to those pollutant-specific emissions units for which the proposed permit revision is applicable.”

The regulations, at 40 CFR 64.5(b), state the following with regard to submittal of a CAM Plan for the “other pollutant-specific emissions units”:

“...the owner or operator shall submit the information required...as part of an application for a renewal of a part 70 or part 71 permit.”

Area 7 & 8 Sources Venting to Thermal Oxidizer (FU-16)

A. Background

1. Emissions Unit

Facility: AdvanSix Resins and Chemicals LLC - Hopewell Plant
Process Description: See Table Below
Stack ID: FU-16

<u>Ref. #</u>	<u>Process/Equipment Description</u>
EV-46	Area 7 CRU Thin Film Evaporator
VT-XXX1	Area 7 CRU Residue Recovery Tank
LacSep	Lactam/Sulfate/Emulsion Separation (APT-9, APT-10, HT-58, HT-74, HT-99, VT-246)
LacExt	Caprolactam Extraction and Separation (CL-14, CL-45, SE-125)
CL-15	Toluene/Sulfate Stripper Column
CL-15new	Toluene/Sulfate Stripper Column
CL-28, 29	Toluizer Head Tanks
CL-29new	Toluizer Head Tank
CL-62, CL-62new	Toluene/Lactam Distillation Column
HT-53	Toluene/Water Separator
VT-221	Toluene Storage Tank
VT-227	Toluene Recovery Flash Tank
VT-245	Toluene Storage Tank
VT-344	CL-15 O/H Recovery Tank
VT-361	Toluene Vent Condenser
SolLdg	Area 8 Solvent Purge Loadout

2. Applicable Regulation, Emissions Limit, and Pre-CAM Monitoring Requirements

With regard to the four criteria listed above for a facility to be subject to the CAM rule, the following facts pertain to the AdvanSix Resins and Chemicals - Hopewell Plant:

- The Hopewell Plant is a major source and has a Title V Permit, PRO50232.
- The various systems (see above) are subject to existing Title V Permit limits. The Title V Permit was originally issued on January 1, 2007.
- The process equipment utilizes a control device (thermal oxidizer) to achieve compliance with the VOC emission limits.
- The pre-controlled, potential VOC emission rate is above the major source level of 100 tons per year.

Based on these facts, the emission units are subject to the CAM requirements for VOC.

CAM Emissions limit: VOC: 8.6 lbs/hr; 6.1 tons/year

Pre-CAM Monitoring Requirements: temperature monitors and visible emissions observations

3. Control Technology, Capture system, Bypass, Potential-to-Emit

Controls: Thermal Oxidizer
Capture System: Closed duct system
Bypass: In the event of a startup, shutdown, or malfunction, the thermal oxidizer could be bypassed but the vent stream goes to an alternative control device. Periods of bypass are documented and reported as necessary.
PTE Before Control: >major source thresholds for VOC
PTE After Control: 6.1 tons/year

B. CAM Approach

	Indicator 1	Indicator 2
Indicator	Temperature	Visible Emissions
Measurement Approach	Continuously measured	Monthly visible emissions checks
Indicator Range	Minimum temperature of 1132 °F (611°C) established during 9/2008 performance test (minimum temperature can change according to most recent stack test)	Presence of visible emissions
Performance Criteria		
Data Representativeness	Measured continuously	NA - times chosen randomly
Verification of Operational Status	NA	Observer verifies area running before conducting observations
QA/QC practices	Thermocouple calibration according to site PM schedule	Observer trained on VE/Opacity
Monitoring Frequency	Continuously	Monthly
Data Collection Procedures	DCS collects data every 15 minutes and reduces to 3 hr averages	Paper record kept
Averaging Period	3 hour	NA

	Indicator 1	Indicator 2
Excursions	Temperature less than minimum temperature of 1132 °F (611°C) (minimum temperature can change according to most recent stack test)	Presence of visible emissions

C. Response to Excursion

During normal operation, an indication of temperature below the limit established by the stack test indicates thermal oxidizer performance issues that require corrective actions. In addition, any visible emissions also indicate thermal oxidizer performance issues. During such events, an investigation will be initiated to determine the cause of the excursion and corrective actions taken as soon as practicable to correct the cause of the excursion. All excursions will be documented and reported as necessary.

D. Justification

4. Background

The pollutant specific emissions unit (PSEU L) is VOC from various Area 7 and Area 8 emission units.

5. Rationale for Selection of Performance Indicators and Ranges

The CAM approach for the site's thermal oxidizers will be to monitor temperature continuously. The minimum temperature will be maintained above the temperature demonstrated to provide sufficient destruction efficiency during source testing. Secondary monitoring will consist of periodic visible emissions observations.

Attachment A-4

**COMPLIANCE ASSURANCE MONITORING PLAN FOR AREA 11
ADVANSIX RESINS AND CHEMICALS LLC
TITLE V PERMIT NO. PRO50232**

Compliance Assurance Monitoring (CAM) Rule

The CAM rule is essentially a companion rule to Title V, requiring that control device operating parameters be monitored in order to demonstrate compliance with a specified emission limitation or standard. At 40 CFR 64.2(a), the CAM rule states the following:

“...the requirements of this part shall apply to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:

- (10) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;*
- (11) The unit uses a control device to achieve compliance with any such emission limitation or standard; and*
- (12) The unit has the potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...”*

The CAM Rule defines two classes of emission units. These are “large pollutant-specific emissions units” and “other pollutant-specific emissions units”. The “large” units are those, “...with the potential to emit...taking into account control devices...the applicable regulated pollutant in an amount greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...” The “other” units are those that are not “large” units. As such, the primary difference between the two categories is that “large” units are those that are still major (*i.e.*, greater than 100 percent of the major source threshold) after the application of controls, while the “other” units are those that are non-major (*i.e.*, less than or equal to 100 percent of the major source threshold) following the application of controls.

The federal regulations, at 40 CFR 64.5(a)(2), state the following with regard to submittal of a CAM Plan for “large pollutant-specific emissions units”:

“On or after April 20, 1998, the owner or operator shall submit information as part of an application for a significant permit revision under part 70 or 71 of this chapter, but only with respect to those pollutant-specific emissions units for which the proposed permit revision is applicable.”

The regulations, at 40 CFR 64.5(b), state the following with regard to submittal of a CAM Plan for the “other pollutant-specific emissions units”:

“...the owner or operator shall submit the information required...as part of an application for a renewal of a part 70 or part 71 permit.”

Area 11 Sources Venting to Scrubbers

A. Background

1. Emissions Unit

Facility: AdvanSix Resins and Chemicals LLC - Hopewell Plant
Process Description: See Table Below
Stack ID: See Table Below

Stack ID	Equipment ID	Process/Equipment Description
DC-7	RD-3	Rotary Dryer
DC-11	RD-4	Rotary Dryer
DC-12	RD-6	Rotary Dryer
DC-29	RD-7	Rotary Dryer
DC-21	B12, SC-65, SC-66, SC-67 and CO-225	Building 12 Ammonium Sulfate Storage and loading operation; and other equipment including triple deck screens and conveyor

2. Applicable Regulation, Emissions Limit, and Pre-CAM Monitoring Requirements

With regard to the four criteria listed above for a facility to be subject to the CAM rule, the following facts pertain to the AdvanSix Resins and Chemicals LLC - Hopewell Plant:

- The Hopewell Plant is a major source and has a Title V Permit, PRO50232.
- The various systems (see above) are subject to existing Title V Permit limits. The Title V Permit was originally issued on January 1, 2007.
- The process equipment utilizes a control device (scrubbers) to achieve compliance with the PM-10 emission limits.
- The pre-controlled, potential PM-10 emission rate is above the major source level of 100 tons per year.

Based on these facts, the emission units are subject to the CAM requirements for PM-10.

CAM Emission Limits: RD-3, RD-4, RD-6, RD-7 combined: PM-10: 14.7 lbs/hr; 53.7 tons/yr
B12 etc. combined: PM-10: 2.2 lbs/hr; 7.3 tons/yr

Pre-CAM Monitoring Requirements: pressure drop and scrubbant flow

3. Control Technology, Capture system, Bypass, Potential-to-Emit

Controls: Scrubbers
Capture System: Closed duct system
Bypass: N/A
PTE Before Control: >major source thresholds for PM-10
PTE After Control: See emission limits above

B. CAM Approach

	Indicator 1	Indicator 2
Indicator	Pressure drop	Scrubbant flow
Measurement Approach	Continuously monitor	Continuously monitor
Indicator Range	As determined by engineering judgment*	As determined by engineering judgment*
Performance Criteria		
Data Representativeness	NA - continuously monitored	NA - continuously monitored
Verification of Operational Status	NA	NA
QA/QC practices	Calibration of monitoring devices according to site PM schedule	Calibration of monitoring devices according to site PM schedule
Monitoring Frequency	Continuous	Continuous
Data Collection Procedures	15 minute averages recorded by DCS	15 minute averages recorded by DCS
Averaging Period	3 hour	3 hour
Excursions	Pressure drop less than that determined to be normal operating condition by engineering judgment*	Flow rate less than that determined to be normal operating condition by engineering judgment*

*Historical operations data indicates that when the units are operating at these setpoints, there are no compliance issues. The setpoints are as follows:

Unit No.	Pressure drop (in. of H ₂ O)	Flow (gpm)
DC-7	2	50
DC-11	2	50
DC-12	1	30
DC-29	1	20
DC-21	5	80

C. Response to Excursion

During normal operation, low pressure drop or scrubbant flow indicates scrubber performance issues that require corrective actions. During such events, an investigation will be initiated to determine the cause of the excursion and corrective actions taken as soon as practicable to correct the cause of the excursion. All excursions will be documented and reported as necessary.

D. Justification

4. Background

The pollutant specific emissions units (PSEUs M-Q) are PM-10 from RD-3, RD-4, RD-6, RD-7 and the combined emissions of Building 12, SC-65, SC-66, SC-67 and CO-225.

5. Rationale for Selection of Performance Indicators and Ranges

For all scrubbers on site used as air pollution control devices, the pressure differential across the devices and the liquid flow rates will be used as CAM. This is a very common CAM approach. Historical operations data indicates that when the units are operating at the setpoints given above, then there are no compliance issues. Therefore, these setpoints are appropriate for monitoring the operation of the control equipment.

Area 11 Sources Venting to Baghouse (DC-31)

A. Background

1. Emissions Unit

Facility: AdvanSix Resins and Chemicals LLC - Hopewell Plant
Process Description: Baghouse for Building 12 (B12) and bulk storage bin elevator (EL-25)
Stack ID: DC-31

2. Applicable Regulation, Emissions Limit, and Pre-CAM Monitoring Requirements

With regard to the four criteria listed above for a facility to be subject to the CAM rule, the following facts pertain to the AdvanSix Resins and Chemicals LLC - Hopewell Plant:

- The Hopewell Plant is a major source and has a Title V Permit, PRO50232.
- The various systems (see above) are subject to existing Title V Permit limits. The Title V Permit was originally issued on January 1, 2007.
- The process equipment utilizes a control device (baghouse) to achieve compliance with the PM-10 emission limit.
- The pre-controlled, potential PM-10 emission rate is above the major source level of 100 tons per year.

Based on these facts, the emission units are subject to the CAM requirements for PM-10.

CAM Emission Limits: DC-31: PM-10: 2.2 lbs/hr; 7.3 tons/yr

Pre-CAM Monitoring Requirements: pressure drop and visible emissions observations.

3. Control Technology, Capture system, Bypass, Potential-to-Emit

Controls: Baghouse
Capture System: Closed duct system
Bypass: N/A
PTE Before Control: >major source thresholds for PM
PTE After Control: 7.3 tons/yr

B. CAM Approach

	Indicator 1	Indicator 2
Indicator	Pressure drop	Visible emissions
Measurement Approach	Continuously monitor	Monthly VE observation
Indicator Range	Minimum delta P of 0.5 inches of water	Above normal visible emissions
Performance Criteria		
Data Representativeness	NA - continuously monitored	NA
Verification of Operational Status	NA	NA
QA/QC practices	Calibration of monitoring devices according to site PM schedule	Observer trained in visible emissions
Monitoring Frequency	Continuous	Monthly
Data Collection Procedures	15 minute averages recorded by DCS	Paper record
Averaging Period	3 hour	NA
Excursions	Pressure drop less than 0.5 inches of water	Any visible emissions

C. Response to Excursion

During normal operation, low pressure drop or visible emissions indicate a baghouse performance issue that requires corrective actions. During such events, an investigation will be initiated to determine the cause of the excursion and corrective actions taken as soon as practicable to correct the cause of the excursion. All excursions will be documented and reported as necessary.

D. Justification

4. Background

The pollutant specific emissions unit (PSEU R) is PM-10 from Building 12 and EL-25.

5. Rationale for Selection of Performance Indicators and Ranges

A decrease in pressure differential will indicate failure in the filter material or failure in other elements of the baghouse system (such as a fan). Continuous monitoring of the pressure difference will provide rapid (virtually instantaneous) indication of such problems. Historical operations data indicates that when the baghouse is operating at or more than the setpoint given above, then there are no compliance issues.

Therefore, this setpoint is appropriate for monitoring the operation of the baghouse. In addition, visual emission checks are a secondary check of failures of fabric filters or baghouses.

Attachment A-5

**COMPLIANCE ASSURANCE MONITORING PLAN FOR SAP
ADVANSIX RESINS AND CHEMICALS LLC
TITLE V PERMIT NO. PRO50232**

Compliance Assurance Monitoring (CAM) Rule

The CAM rule is essentially a companion rule to Title V, requiring that control device operating parameters be monitored in order to demonstrate compliance with a specified emission limitation or standard. At 40 CFR 64.2(a), the CAM rule states the following:

“...the requirements of this part shall apply to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:

- (13) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;*
- (14) The unit uses a control device to achieve compliance with any such emission limitation or standard; and*
- (15) The unit has the potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...”*

The CAM Rule defines two classes of emission units. These are “large pollutant-specific emissions units” and “other pollutant-specific emissions units”. The “large” units are those, “...with the potential to emit...taking into account control devices...the applicable regulated pollutant in an amount greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...” The “other” units are those that are not “large” units. As such, the primary difference between the two categories is that “large” units are those that are still major (*i.e.*, greater than 100 percent of the major source threshold) after the application of controls, while the “other” units are those that are non-major (*i.e.*, less than or equal to 100 percent of the major source threshold) following the application of controls.

The federal regulations, at 40 CFR 64.5(a)(2), state the following with regard to submittal of a CAM Plan for “large pollutant-specific emissions units”:

“On or after April 20, 1998, the owner or operator shall submit information as part of an application for a significant permit revision under part 70 or 71 of this chapter, but only with respect to those pollutant-specific emissions units for which the proposed permit revision is applicable.”

The regulations, at 40 CFR 64.5(b), state the following with regard to submittal of a CAM Plan for the “other pollutant-specific emissions units”:

“...the owner or operator shall submit the information required...as part of an application for a renewal of a part 70 or part 71 permit.”

SAP Sources Venting to Scrubber TW-38

A. Background

1. Emissions Unit

Facility: AdvanSix Resins and Chemicals LLC - Hopewell Plant
Process Description: Sulfuric Acid Plant
Stack ID: SK-1

2. Applicable Regulation, Emissions Limit, and Pre-CAM Monitoring Requirements

With regard to the four criteria listed above for a facility to be subject to the CAM rule, the following facts pertain to the AdvanSix Resins and Chemicals LLC - Hopewell Plant:

- The Hopewell Plant is a major source and has a Title V Permit, PRO50232.
- The various systems (see above) are subject to existing Title V Permit limits. The Title V Permit was originally issued on January 1, 2007.
- The process equipment utilizes a control device (scrubber) to achieve compliance with the SO₂ emission limits.
- The pre-controlled, potential SO₂ emission rate is above the major source level of 100 tons per year.

Based on these facts, the emission units are subject to the CAM requirements for SO₂.

CAM Emissions limit: SO₂: 264.0 lbs/hr 200.0 tons/year

Pre-CAM Monitoring Requirements: Continuous emissions monitoring system (CEMS) for SO₂

3. Control Technology, Capture system, Bypass, Potential-to-Emit

Controls: Scrubber
Capture System: Closed duct system
Bypass: NA
PTE Before Control: >major source thresholds for SO₂
PTE After Control: 264.0 lbs/hr 200.0 tons/year

B. CAM Approach

	Indicator 1	Indicator 2
Indicator	SO ₂ emission rate	NA
Measurement Approach	CEMS	
Indicator Range	Below permitted limits	
Performance Criteria		
Data Representativeness	NA - measured continuously	
Verification of Operational Status	NA	
QA/QC practices	Method 60 CEMS requirements	
Monitoring Frequency	Continuous	
Data Collection Procedures	15 minute averages collected by DCS	
Averaging Period	1 hour	
Excursions	Exceedance of permit limit in NSR condition 256 and 261	

C. Response to Excursion

A CEMS is used as CAM for the scrubber which controls SO₂ emissions below the permitted limit. An excursion is an exceedance of the SO₂ emission rate established by Condition 256 in the NSR permit dated February 19, 2015. Excess emissions are defined in the permit as any 3-hour period where the integrated average sulfur dioxide emissions exceed the standards defined in Conditions 256 or 261 in NSR permit.

During such events, an investigation will be initiated to determine the cause of the excursion and corrective actions taken as soon as practicable to correct the cause of the excursion. All excursions will be documented and reported as necessary.

D. Justification

4. Background

The pollutant specific emissions unit (PSEU S) is SO₂ from the SAP.

5. Rationale for Selection of Performance Indicators and Ranges

A CEMS is to be used as CAM for the scrubber used as control for the Sulfuric Acid Plant. CAM requires CEMS to be used when they are required by the underlying applicable requirement. The CEMS provide a continuous measurement of SO₂ in pounds per hour. If the pounds per hour limit is met then the assumption is that the control device efficiency is also met. Therefore, there is not a need for additional monitoring of control device parameters.

SAP Sources Venting to Mist Eliminator SE-105

A. Background

1. Emissions Unit

Facility: AdvanSix Resins and Chemicals LLC - Hopewell Plant
Process Description: Sulfuric Acid Plant (SAP)
Stack ID: SK-1

2. Applicable Regulation, Emissions Limit, and Pre-CAM Monitoring Requirements

With regard to the four criteria listed above for a facility to be subject to the CAM rule, the following facts pertain to the AdvanSix Resins and Chemicals LLC - Hopewell Plant:

- The Hopewell Plant is a major source and has a Title V Permit, PRO50232.
- The various systems (see above) are subject to existing Title V Permit limits. The Title V Permit was originally issued on January 1, 2007.
- The process equipment utilizes a control device (mist eliminator) to achieve compliance with the PM-10 (sulfuric acid mist) emission limits.
- The pre-controlled, potential PM-10 (sulfuric acid mist) emission rate is above the major source level of 100 tons per year.

Based on these facts, the emission units are subject to the CAM requirements for PM-10 (sulfuric acid mist).

CAM Emissions limit: PM-10 (Sulfuric Acid Mist): 2.2 lbs/hr 8.2 tons/year

Pre-CAM Monitoring Requirements: pressure drop and visible emissions observations.

3. Control Technology, Capture system, Bypass, Potential-to-Emit

Controls: Mist eliminator
Capture System: Closed duct system
Bypass: N/A
PTE Before Control: >major source thresholds for PM
PTE After Control: 2.2 lbs/hr 8.2 tons/year

B. CAM Approach

	Indicator 1	Indicator 2
Indicator	Pressure drop	Visible emissions
Measurement Approach	Continuously measure	Monthly visible emissions checks
Indicator Range	Minimum delta P of 10 in. of water during normal process operation (based on October 5, 2008 stack test). When sulfur burn rate is less than 160 tons/day, minimum delta P does not apply and a visible emissions check is conducted.	If greater than average - conduct Method 9
Performance Criteria		
Data Representativeness	NA - continuously measured	NA
Verification of Operational Status	NA	NA
QA/QC practices	Periodic calibration of pressure measuring devices according to PM schedule	Observer trained in Methods 22 and 9
Monitoring Frequency	Continuous	Monthly
Data Collection Procedures	15 minute averages collected by DCS	Paper record
Averaging Period	Hourly	NA
Excursions	Pressure drop less than 10 in. of water during normal operation (more than 160 tons/day sulfur burn rate).	Presence of visible emissions

C. Response to Excursion

During normal operation (more than 160 tons per day of sulfur burn rate), low pressure across the eliminator and/or visible emissions observations indicate control device performance issues that require corrective actions. During such events, an investigation will be initiated to determine the cause of the

excursion and corrective actions taken as soon as practicable to correct the cause of the excursion. All excursions will be documented and reported as necessary.

D. Justification

4. Background

The pollutant specific emissions unit (PSEU T) is PM-10 from the SAP.

5. Rationale for Selection of Performance Indicators and Ranges

For the mist eliminator, the pressure differential across the device and monthly visible emissions checks will be used as CAM. An indication of low pressure or visible emissions would signal a problem with scrubber performance.

Attachment A-6

**COMPLIANCE ASSURANCE MONITORING PLAN FOR KELLOGG
ADVANSIX RESINS AND CHEMICALS LLC
TITLE V PERMIT NO. PRO50232**

Compliance Assurance Monitoring (CAM) Rule

The CAM rule is essentially a companion rule to Title V, requiring that control device operating parameters be monitored in order to demonstrate compliance with a specified emission limitation or standard. At 40 CFR 64.2(a), the CAM rule states the following:

“...the requirements of this part shall apply to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:

- (16) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;*
- (17) The unit uses a control device to achieve compliance with any such emission limitation or standard; and*
- (18) The unit has the potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...”*

The CAM Rule defines two classes of emission units. These are “large pollutant-specific emissions units” and “other pollutant-specific emissions units”. The “large” units are those, “...with the potential to emit...taking into account control devices...the applicable regulated pollutant in an amount greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...” The “other” units are those that are not “large” units. As such, the primary difference between the two categories is that “large” units are those that are still major (*i.e.*, greater than 100 percent of the major source threshold) after the application of controls, while the “other” units are those that are non-major (*i.e.*, less than or equal to 100 percent of the major source threshold) following the application of controls.

The federal regulations, at 40 CFR 64.5(a)(2), state the following with regard to submittal of a CAM Plan for “large pollutant-specific emissions units”:

“On or after April 20, 1998, the owner or operator shall submit information as part of an application for a significant permit revision under part 70 or 71 of this chapter, but only with respect to those pollutant-specific emissions units for which the proposed permit revision is applicable.”

The regulations, at 40 CFR 64.5(b), state the following with regard to submittal of a CAM Plan for the “other pollutant-specific emissions units”:

“...the owner or operator shall submit the information required...as part of an application for a renewal of a part 70 or part 71 permit.”

Kellogg Primary Reformer (FU-1) Low Pressure Purge Controlled by Compressor GC-11

A. Background

1. Emissions Unit

Facility: AdvanSix Resins and Chemicals LLC - Hopewell Plant
Process Description: The NO_x emissions from the Kellogg primary reformer (FU-1) are controlled by the operation of compressor GC-11 such that the low pressure purge from the ammonia synthesis loop is recovered to the Cryogenics Unit in Area 6.
Stack ID: FU-1

2. Applicable Regulation, Emissions Limit, and Pre-CAM Monitoring Requirements

With regard to the four criteria listed above for a facility to be subject to the CAM rule, the following facts pertain to the AdvanSix Resins and Chemicals LLC - Hopewell Plant:

- The Hopewell Plant is a major source and has a Title V Permit, PRO50232.
- The various systems (see above) are subject to existing Title V Permit limits. The Title V Permit was originally issued on January 1, 2007.
- The process equipment utilizes a control device (compressor) to achieve compliance with the NO_x emission limit.
- The pre-controlled, potential NO_x emission rate from FU-1 is above the major source level of 100 tons per year.

Based on these facts, the emission units are subject to the CAM requirements for NO_x.

CAM Emissions limit: NO_x: 517.0 lbs/hr 552.6 tons/year

Pre-CAM Monitoring Requirements: purge stream pressure at inlet of compressor

3. Control Technology, Capture system, Bypass, Potential-to-Emit

Controls: Compressor GC-11
Capture System: Closed duct system
Bypass: N/A
PTE Before Control: >major source thresholds for NO_x
PTE After Control: 552.6 tons/year

B. CAM Approach

	Indicator 1	Indicator 2
Indicator	Valve position	NA
Measurement Approach	Continuously measure	NA
Indicator Range	Set to maximum of 5% open dependent upon process conditions	NA
Performance Criteria		
Data Representativeness	NA – continuous	NA
Verification of Operational Status	NA	NA
QA/QC practices	Periodic calibration of valve position sensor according to site PM schedule	NA
Monitoring Frequency	Continuous	NA
Data Collection Procedures	NA	NA
Averaging Period	NA	NA
Excursions	Valve open position greater than 5% resulting in alarm	NA

C. Response to Excursion

During normal operation, the valve in the purge line is kept at less than 5% open in order to purge inerts from the gas stream. A valve position of greater than 5% during normal operation would result in a Cirrus system alarm and would indicate process conditions that require corrective actions. During such events, an investigation will be initiated to determine the cause of the excursion and corrective actions taken as soon as practicable to correct the cause of the excursion. All excursions will be documented and reported as necessary.

D. Justification

4. Background

The pollutant specific emissions unit (PSEU U) is NO_x from FU-1.

5. Rationale for Selection of Performance Indicators and Ranges

In this case, a process parameter indicating that the vent gas is being routed to other process equipment is being used as CAM (the Kellogg purge valve to Area 6 Cryogenics). The processes themselves are continuously monitored to assure that the process conditions remain in closely controlled ranges.

Therefore, the key condition to be monitored is monitoring that the vented gas is in fact going to the process. When the purge line is operated with a valve open position less than 5% (dependent upon process conditions), historical data indicates that there are no compliance issues in regards to NO_x for FU-1.

ATTACHMENT B – ADVANSIX RESINS AND CHEMICALS LLC NO_x BUDGET APPLICATION